

1. The Nuclear Regulatory Commission's refusal to disclose certain details of the proposed DBT rule, such as the minimum number of attackers that the plant security force must be prepared to repel, contradicts the agency's stated goal of increasing meaningful public and stakeholder participation in the rulemaking process, and further reinforces the public's lack of confidence in the NRC to exercise effective oversight on security at nuclear power plants.

By publicly disclosing significant changes in the DBT, the NRC could demonstrate that it is responding to the post 9/11 threat environment in a concrete way. As it stands, the lack of essential information regarding specific details of the proposed rule make it impossible to submit constructive, well informed comments addressing these changes. Stakeholders can only comment on the slight changes reflected in the text of the proposed rule, and are forced to make assumptions regarding revisions the NRC has deemed "Safeguarded" under agency policy.

In announcing the proposed rule, the NRC states "it is important for the public to be informed of the types of attacks against which nuclear power plants...are required to defend. The public has a vital stake in the security of these facilities, as well as the right to meaningful comment when NRC proposes to amend its regulations."ⁱ Despite this pronouncement, it remains unclear to what degree the security requirements for nuclear power plants have been strengthened. For example, will the agency require licensees to protect against an attack perpetrated by a minimum of 19-20 terrorists, or has the number merely increased from four to eight? The proposed rule does not say.

- a. The revised DBT should require that a plant's private guard force is capable of repelling, at a minimum, an attack of the scope, size and sophistication equal to that carried out by Al Qaeda against the United States on September 11, 2001, as stated in the Committee to Bridge the Gap's Petition, PRM-73-12.**

Riverkeeper commends the NRC for proposing changes to 10 CFR §73.1(a) (1) (i) that address a potential attack by a large force, operating in multiple teams and employing advanced vehicles and weaponry. However, the degree to which the rule has been strengthened is still unknown. According to the Project on Government Oversight (POGO), the existing DBT Rule only requires licensees to protect against a force of three attackers working with one insider, armed only with automatic weapons.ⁱⁱ It remains unclear to what degree this specific requirement has been upgraded under the Commission's April 29, 2003 DBT Orders, due to the utter lack of public knowledge regarding specific changes.

Several government-sponsored studies released after 9/11 confirm that nuclear power plants remain prime terrorist targets. In July 2002, the National Research Council issued a report on the vulnerability of the nation's infrastructure to terrorist attack, which found that the risk of a 9/11 style attack on a nuclear plant remained high, with potentially severe damage if it caused a large radioactive release. The 9/11 Commission Report reiterated that Al Qaeda considered targeting nuclear power plants on 9/11, and

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subsequent interrogation of captured Al-Qaeda operatives confirmed that nuclear facilities continue to be targets.

Requiring that nuclear plant security forces defend against an attack by at least twenty heavily armed, well-trained suicidal attackers, and disclosing this requirement to the public, will not give potential terrorists any information about the maximum number of attackers they would have to field in order to penetrate a plant's defenses. On the contrary, it is reasonable to believe that were this public knowledge, it would demonstrate that the NRC had learned from 9/11 and was taking the threat of a terrorist attack very seriously. The 9/11 Commission also reported that Mohammed Atta, leader of the hijackers, considered targeting a nuclear plant but decided against it, based on his perception that security was very robust. Based on this, there is reason to believe that making this information public would serve at least some deterrent value against a future attack. Specifying a minimum number of attackers merely establishes a baseline, and reveals nothing about actual security levels at individual plants beyond what is generically required. Common sense suggests that plants in high profile locations, such as Indian Point outside New York City, would have more stringent requirements based on their individual ACD, which would remain Safeguarded. We fully support the agency in its efforts to keep details of the DBT secret that could endanger security at nuclear power plants if publicly disclosed. How would the disclosure of the number of attackers in the generic DBT harm our national interest, or threaten our security? Our national interest is definitely harmed when an atmosphere of excessive secrecy pervades any public discussion of this topic by the NRC. Stakeholders and the public are left to fill in the blanks. The result is confusion, misinformation, and the continuing public perception that the federal government, in this case the NRC, is not doing enough to protect them.

For this reason, Riverkeeper reiterates its support for PRM-73-12 and calls on the NRC to require licensees to defend against an attack with at least the same number of attackers and level of preparedness as that which occurred on 9/11.

2. In order to fully comply with §651(a) of the Energy Policy Act of 2005, the NRC must either grant the change requested by PRM-73-12 regarding air attacks, or formally acknowledge that the credible threat of an air-based attack exceeds the level of “attack against which a private security force could reasonably be expected to defend”, and therefore request that the federal government assume responsibility for security at all domestic nuclear power plants.

Pursuant to §651(a) of the Energy Policy Act of 2005, the Commission must consider 12 factors when conducting the Design Basis Threat Rulemaking, as mandated in the Act. Factor (6) is “The potential for water-based and air-based threats.”ⁱⁱⁱ As part of this rulemaking, the NRC is ‘deferring’ its decision on how to respond to PRM-73-12 until it releases its final rule. The petitioners requested that the DBT be revised to include defending against an aircraft suicide attack with a commercial airliner.

In the proposed rule, the NRC cites increased federal efforts to protect the public from terrorist attacks by air, mainly through enhancements to airport security, increased intelligence efforts, and physical improvements to airline cockpit doors. The NRC also

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claims to have conducted assessments of the physical effects and consequences of an aircraft attack on a nuclear plant. However, the results of these assessments remain safeguarded and unavailable for independent, public review. An NRC official could only confirm to a Riverkeeper staff member that some type of aircraft impact test had been done; the timing of the test, type of aircraft, and the results were all safeguarded. In fact, the official barely acknowledged that a test had been conducted at all.

The NRC's complete lack of transparency on this issue is deeply disturbing, and calls into question the ability of the agency to carry out its legal duty, to "redefine the level of security requirements necessary to ensure that the public health and safety and common defense and security are adequately protected." 70 FR 67380. Since the 9/11 attacks, the agency has failed to present a clear picture of the risk this type of attack poses, and what steps have been taken to address it. Shortly after 9/11, agency officials claimed that reactor containment domes were built to withstand the impact of a 747 without a release of radiation. The NRC later backtracked, when it was discovered that reactor containment designs and testing predated the design of many modern airliners, including the 747.

The NRC also failed to respond to the NAS 2005 study on the vulnerability of spent fuel pools at nuclear power plants, which concluded that the pools are susceptible to terrorist attacks by air or land.^{iv} A successful attack on a plant's spent fuel stockpile would cause a potentially catastrophic release of radiation were a zirconium cladding fire to break out as a result. Why has the NRC not required all licensees to immediately 'harden' their spent fuel storage buildings in response? Merely removing the exemptions enjoyed by ISFSIs under the current DBT rule does not go far enough.^v The NRC must require licensees to make physical changes to their ISFSIs as part of compliance with the new rule.

An earlier study conducted by the Nuclear Energy Institute in 2002 found that containment buildings and spent fuel storage buildings would withstand the impact of a Boeing 767 without causing a release of radiation.^{vi} However, this study does not consider the damage caused by thousands of gallons of burning jet fuel being dispersed upon impact, or the force of the fuel exploding. The study also admits that nuclear containment and fuel storage buildings were never designed to withstand this type of impact. It merely assumes that, because containment structures were built to withstand earthquakes and windborne 'missiles', they would be able to weather the impact of a 450,000 pound airplane loaded with flammable fuel. Most importantly, the study fails to consider the extent of damage to other essential plant systems and structures, such as the control room and backup cooling systems. Severe damage to these sections of the plant could make it difficult or impossible for plant personnel to maintain control of the facility.^{vii} Based on these omissions, the NEI study is fatally flawed, and should not be considered a reputable assessment of the consequences of this type of attack.

The NRC's failure to respond adequately to the aircraft impact controversy illustrates a fundamental flaw in the regulatory regime that oversees nuclear power plant security. The problem lies in the agency's refusal to address a threat that falls in the gap between what is "reasonably" expected of a private guard force under the DBT, and what the agency defers to the military to guard against, under the "Enemy of the state" provision of 10 CFR §50.13. This provision exempts licensees from defending against

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attacks by “an enemy of the United States, a foreign government or other person...”^{viii}
These types of attacks are perceived to be beyond the abilities of a private security force to defend against, and are left to the Department of Homeland Security and the military to address. The term “enemy of the United States” is not defined in the regulations.

The NRC states in the proposed rule that “[T]he DBT is based upon review and analysis of actual demonstrated adversary characteristics in a range of terrorist attacks, and *a determination as to the attacks against which a private security force could reasonably be expected to defend.*” 70 FR 67385(emphasis added). The NRC does not publicly define or explain what a private security force can reasonably be expected to defend against, citing obvious national security concerns. The following questions and concerns arise immediately.

- Has the NRC conducted a study or assessment since September 11, 2001 on the probability and consequences of a suicidal, air-based attack against a nuclear power plant, in which a fully loaded (with fuel) airliner such as a Boeing 767 is purposefully flown into either the containment dome, fuel storage building, or other essential plant structures, such as the control room? If so, what were the results?
- Is it reasonable to expect a private guard force to defend against a minimum of twenty well-trained, heavily armed attackers who are willing to “kill and be killed?” If not, then how is this type of threat addressed?
- How does the NRC classify Al-Qaeda? Is it considered an “enemy of the United States...other person” or an adversary force that could be repelled by the plant security force? If a terrorist threat such as Al-Qaeda is perceived to be an “enemy” under §50.13, does this mean that the DBT does not have to address terrorist threats?
- If the threat of a suicidal aircraft attack on a nuclear power plant is considered beyond the capabilities of the private security force to guard against, then what agency of the federal government is responsible for defending against this type of threat?

The answers to the previous questions are unknown to the public, due to concerns over national security. We are left with an unsettling situation in which the public does not know where the NRC’s regulation of nuclear power plant security ends, and the larger role of the U.S. military or Department of Homeland Security begins. What is ‘reasonable’ all too often depends on how many resources licensees are willing to devote to security, if they are aware that larger, more ominous threats will be left to the federal government to defend against.

In this context, the NRC’s approach to the aircraft attack threat is unacceptable, and must be rectified. The Energy Act of 2005 specifically requires that the agency consider the threat of an air attack. The NRC response, in the form of this proposed rule, again fails to resolve this issue. Instead, it defers a decision until the final rule is written, effectively preventing any substantive public comment on its final decision. This position ignores all the federal government has learned since 9/11 about the capabilities and willingness of Al-Qaeda to mount large scale, sophisticated attacks against domestic targets inside the U.S. Addressing the threat of an aircraft attack on a nuclear plant must

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be a crucial element of the NRC approach to nuclear security, and must go beyond outdated deference to a regulatory exemption (10 CFR §50.13) that was written in 1967, at the height of the Cold War. The NRC has two choices.

First, it can grant the request in PRM-73-12, and require private guard forces at nuclear power plants to defend against air-based attacks. This would require substantial upgrades in weaponry and/or defensive installations, such as Beamhenge or the Phalanx anti-aircraft system, as well as increased coordination between plant security personnel, state and federal officials responsible for controlling air traffic in the vicinity of nuclear plants. The risk of an accidental downing of a commercial airliner must be addressed if plants are equipped with anti-aircraft defenses, just as the risk of an air-based attack must be addressed if no additional security measures are taken at each plant site.

Second, the agency can acknowledge that it would be unreasonable to require the private guard force to be able to defend the plant against an air-based attack under the DBT. The NRC should then immediately request that the Department of Homeland Security or the U.S. military assume full responsibility for security at all domestic nuclear power plants. The federal government or military can provide highly trained, well-equipped security forces that would not be hindered by the ‘reasonable expectation’ that a private security force is restricted to. Federalizing security would also ensure that the licensees’ profit margins no longer play a role in determining the appropriate level of security at nuclear plants.

3. The revised DBT Rule should require that nuclear power plants situated on navigable waterways be equipped with visible, waterborne barriers, to both deter and protect against “waterborne vehicle bomb attacks” and a waterborne attack by a large armed force.

The proposed rule adds a new requirement to protect against “a waterborne vehicle bomb assault, which may be coordinated with an external assault.” 10 CFR §73.1(a)(1)(iv). However, it does not add any requirement for the installation of waterborne defenses against such an attack at plants which are adjacent to navigable waterways, such as Indian Point (New York), Millstone (Connecticut) and Pilgrim (Massachusetts). These plants currently have “Exclusion Zones” varying from 300 to 500 yards in size, demarcated only by buoys and patrolled by small boats (Indian Point). At Indian Point, shipping traffic of all types and sizes passes in front of the plant, only yards away from the buoys marking the zone. At that distance, a high speed boat packed with explosives could easily cross the boundary and reach the bulkhead or intake structure of the plant in less than a minute. While this type of barrier may prevent the stray recreational boater from getting too close to a plant, it is largely a symbolic gesture when it comes to preventing a terror attack.

Under the agency’s existing regime, licensees have the flexibility of choosing how to defend against waterborne threats. They can either install physical barriers to prevent entry into the exclusion zone, or they can ‘engineer’ the facility to endure or withstand damage from a waterborne attack without compromising the safe operation of the reactor. Not surprisingly, all licensees chose the latter route, although it is unclear whether particular systems and structures at specific plants have been ‘hardened’ to

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comply with the DBT. It is also unclear whether the licensees have been required to show that the plant could be operated or shut down safely if the waterborne attack was coordinated with a land-based assault. The text of the proposed rule states only that the waterborne assault “may be coordinated with an external assault.” §73.1(a)(1)(iv). The revised rule must make clear that the “external assault” could be either land- or water-based, thereby addressing the widest possible range of attack scenarios.

There is currently existing technology on the market that would satisfy this requirement.^{ix} The U.S. Navy and the Army Corps of Engineers both employ waterborne barriers that are designed to stop a small or medium sized craft from penetrating the protected zone.^x These barriers are similar to highway crash barriers, in that they are designed to absorb the impact of the object and disperse it. They are affordable and easily installed, and serve as a valuable visual deterrent.

The NRC has never provided a satisfactory explanation as to why these types of barriers have not been required at nuclear power plants. Nor has the agency or the nuclear power industry responded adequately to the concern of an attack on the intake channel at a plant that uses once-through cooling, resulting in blocking the intake of cooling water to the reactor. Such an attack, if successful, could prevent the plant operators from cooling the reactor in time to prevent either a meltdown or other severe plant failure that would result in a radiological release. In comparison, the attack on the American destroyer *U.S.S. Cole* in 2000 was carried out by one small boat loaded with explosives, and it nearly sank the ship and killed seventeen sailors. Destroying or blocking the intake structure could also be part of a larger, coordinated attack on the facility.^{xi}

The utility, cost-effectiveness, and deterrent value of waterborne physical barriers are proven at other types of facilities, such as naval shipyards and large hydroelectric dams. There is no reason why this technology can not be implemented to improve security at nuclear power plants.

For these reasons, the NRC revision to the DBT Rule must require waterborne barriers that would prevent intrusion of a boat, scuba diver or waterborne explosive device into the protected zone at nuclear power plants that abut navigable waterways. Without this change, these facilities will continue to be vulnerable to an attack that could damage or destroy essential plant systems, including the intake structure that supplies cooling water to the reactor.

4. The revised DBT regulation must prohibit the corporations which supply the private guard forces at domestic nuclear power plants from staffing both the guard force and the team of “mock terrorists” that participate in Force-on-Force (FOF) exercises at the same plant, in order to comply with Section 651(a) of the Energy Policy Act of 2005.

Pursuant to Section 651(a)(1)(b) of the Energy Policy Act, “[T]he Commission shall mitigate any potential conflict of interest that could influence the results of a force-on-force exercise, as the Commission determines to be necessary and appropriate.” According to the Union of Concerned Scientists, many of the private security companies that contract with licensees to provide security at nuclear power plants, also provide

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personnel to act as “mock terrorists” at the same plants during Force-on-Force exercises.^{xii} Riverkeeper has been told by the NRC that current agency policy allows the same corporation to supply both the security force and the “mock terrorist” force at the same plant during security drills, as long as the two groups are accountable to separate vice-presidents in the corporate structure. This is a distinction without a difference, since the same corporation is ultimately employing both groups. This is a clear conflict of interest. There is no incentive for the mock terrorist force to prevail, if the resulting failure of the guard force reveals problems with the security company’s performance. Even if entirely separate chains of authority were set up within a single company, this would not comply with the language in the Act, which specifies “any potential conflict.”

In order to avoid even an appearance of impropriety, the NRC must require that different companies supply the guard force and the mock terrorists in the FOF exercises. This would foster competitiveness rather than complicity. It is imperative that these drills are conducted in as realistic a manner as possible, in order to provide an accurate picture of plant security. Allowing such an obvious conflict of interest suggests the agency is continuing its pattern of focusing on the nuclear industry’s economic concerns rather than ensuring that private guard forces are prepared to defend these plants.

ⁱ 70 FR 67382, November 7, 2005.

ⁱⁱ Testimony of Danielle Brian, Executive Editor of POGO Report, *Inadequate Security at Nuclear Power Plants*, before the Senate Environment and Public Works Committee, June 5, 2002.

ⁱⁱⁱ See §651(a) of the Energy Policy Act of 2005, amendment to §170E of the Atomic Energy Act.

^{iv} National Research Council, *Safety and Security of Commercial Spent Nuclear Fuel Storage: Public Report*, April 6, 2005, National Academies Press.

^v See 70 FR 67382, November 7, 2005.

^{vi} EPRI Nuclear Plant Structural Study, December 2002, Nuclear Energy Institute.

^{vii} See Statement Submitted by David Lochbaum to the Subcommittee on National Security, Emerging Threats, and International Relations, U.S. House of Representatives, September 14, 2004, pg. 3.

^{viii} 10 CFR §50.13(a).

^{ix} Elemental Innovation, Inc. designed their HALO Security Boat Barriers specifically for use at seaports and other facilities that have systems or structures on a waterfront. They can be coupled with underwater netting that can further retard boat motion, entangle vessels and prevent divers or submersibles from gaining entry to the protected area. For further information see their website at www.elementalinnovation.com.

^x The Navy has deployed waterborne barriers similar to those referenced above at foreign ports to protect aircraft carriers and other vessels, in the wake of the U.S.S. Cole attack on October 12, 2000. The Corps of Engineers has deployed similar barriers in front of Hoover Dam in Nevada.

^{xi} See Note 7.

^{xii} See Note 5.