UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
All Licensed Nuclear Power Plants	)	Docket Nos. _____
	)	

FAILURE TO ADEQUATELY ASSESS RISK OF MALEVOLENT AIRBORNE ATTACK

-AND-

FAILURE TO ADEQUATELY ASSESS RISK OF TERRORIST ATTACK AT SPENT FUEL STORAGE FACILITIES

-AND-

FAILURE TO ADEQUATELY PROTECT NUCLEAR PLANTS FROM A TERRORIST ATTACK

I. INTRODUCTION

The National Whistleblower Center and Randy Robarge (hereinafter "Petitioners"), under the provisions set forth in 10 C.F.R. §2.206, hereby seek immediate short term and long term corrective action to protect the public from the devastation that is likely to be should a large commercial jetliner come under terrorist control and crash into any of the 103 nuclear power plants located within the United States. The fact of the matter is that no commercial nuclear power plant located within the United States was designed to withstand the impact of a large commercial airliner. In addition, petitioners request that compensatory measures, as set forth below, be adopted in order to protect the public and environment from the catastrophic impact of a terrorist attack on a nuclear power plant or a spent fuel pool.

ALLEGATION I

No Commercial Nuclear Power Plant located in the United States can withstand the impact of a large commercial airliner.

On September 11, 2001 the U.S. Nuclear Regulatory Commission ("NRC") made false assertions to the public by claiming that America's commercial nuclear power plants were designed to withstand the impact that toppled the World Trade Center towers. Ten days later the NRC reluctantly acknowledged that this claim was false.(1) Nonetheless, spokespersons for the nuclear industry continue to mislead the nation about the ability of a nuclear plant to withstand the impact of a large commercial jet airliner.(2) It

also appears that the NRC is once again misleading the public, as a spokesperson for the NRC publically asserted on October 22, 2001 that a large plane crashing into the reactor's outer containment dome will not be able to penetrate the nuclear core.(3) The simple truth is that the NRC has long since known that the design and construction of all of the nuclear power plants located within the United States do not come close to being able to withstand the impact of a large commercial jet.(4) This fact was reported in a publicly available NRC technical report prepared in 1982. See NUREG/CR [DELETED] (1982).(5)The process in which a jet airliner penetrates a nuclear reactor is described in this report as follows:

Impact of an aircraft upon a concrete containment of a nuclear power plant generally may result in the damage to concrete walls. . . Missile velocities generated by aircraft crashes may be between [DELETED]. The Local damage due to aircraft impact consists of spalling of concrete from the (impacted) surface and scabbing of concrete from the rear surface of the target together with missile penetration into the target as shown in fig. 13. If the damage is sufficient, the missile may perforate and pass through the target.

As the velocity of the impacting missile increases, pieces of concrete are spalled off from the impacted surface of the target. This spalling creates a spall crater that can extend over an area substantially greater than the cross-sectional area of the striking missile. As the velocity increases, the missile will penetrate the target to depths beyond the depth of the spall crater, forming a cylinderal hole with a diameter slightly greater than the missile diameter. As the penetration continues, the missile will stick to the concrete target; this is called plastic impact. Further increases in velocity produce cracking of the concrete on the rear surface followed by scabbing of concrete from the rear surface. The zone of scabbing will generally be much wider, but not as deep as the front surface spall crater.

Once scabbing begins, the depth of penetration will increase rapidly. [DELETED] the pieces of scabbed concrete can be large and have substantial velocities. As the missile velocity increases further, perforation of the target will occur as the penetration hole extends through the scabbing crater. Still higher velocities will cause the missile to exit from the rear surface of the target. . .

NUREG /CR-[DELETED] at pp. 61-65 (emphasis in original).

This report goes on to explain that a large commercial airliner striking the reactor dome at a speed of [DELETED] would easily penetrate the reactor dome and deliver to the reactor's primary containment structure a force equal to the maximum load reached at penetration.(6)The report concludes that the force reached at penetration would be in the "[DELETED](7)and that this entire force would be delivered to primary containment if the aircraft was strikes the outer dome at [DELETED].(8)Delivering a force equal [DELETED] would obliterate the reactor core's primary containment thereby immediately releasing massive amounts of radiation into the atmosphere without any chance of evacuation. Thousands of people would quickly perish and thousands more would perishing over time.

Even more disconcerting is the explosive force that would be delivered to the reactor's core from exploding fuel. According to the NRC's own report, jet fuel would likely penetrate into the containment structure. The report concludes that if only [DELETED] of jet fuel (less than

[DELETED] % of the jet fuel aboard a [DELETED) vaporizes in the envelope between the outer

containment dome and the reactor core, the resulting explosive blast would be equal to

[DELETED].[9]In other words, the explosive force from jet fuel igniting inside the containment dome would easily convert the containment dome itself into a bomb that can deliver the explosive force of a small nuclear weapon.

Significantly, this report intentionally excluded a risk analysis from a terrorist attack, stating that the NRC never analyzes the risks associated with a terrorist attack because:

Security regulations are designed and structured to prevent sabotage on the assumption that the design-basis threat could occur at commercial nuclear power plants without assessing the actual probability or consequences.

See NRC Technical Study of Pent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants (October 2000) at p. 4-15.

The grotesque flaw associated with the approach is that it could never compensate for a terrorists using airborne vehicles to destroy vulnerable nuclear plant structures. Once it became known that terrorists were contemplating crashing jets into nuclear facilities, the ability to prevent a design-basis threat from a terrorist attack ended. Clearly, the NRC left the public at grave risk.

- **The NRC Intentionally Misled the Public about its Failure to Adequately Consider Risks Associated with an Air Assault on a Nuclear Facility.**

Between 1994 and 1995 it became public knowledge that terrorists were considering crashing commercial aircraft into nuclear facilities. [10]Unlike certain other countries which required its nuclear plants at the time of construction to be hardened to the point of being able to withstand airborne assault by a large commercial aircraft, the NRC chose not to impose this safety requirement of plants being constructed in the United States. Clearly, as the potential threat from international terrorism steadily increased over the years, the NRC took no action to address this growing threat. When confronted with the reality of the September 11, 2001 attacks on the World Trade Center and Pentagon, the spokespersons for NRC intentionally misled the public by making the preposterous claim that domestic plants were built to withstand the impact of a Boeing 747. Remarkably, the NRC did not seek to correct this false statement until September 21, 2001 -- eleven days after it was made.[11] Thereafter, an NRC spokesperson publically asserted that the NRC was unprepared to address the concern because "[n]obody conceived of this kind of assault." [12] This assertion is false. Public interest organizations have repeatedly raised a concern over the reality that nuclear facilities were not safe from a malevolent airborne assault. For example, in August 1995, following the Oklahoma City bombing, NRC Staff was faced with having to seek public comment on a proposed rule change which addressed the level of protection that should be afforded to a spent fuel facility. See 60 FR 42079. Where the NRC and industry completely ignored airborne vehicles, comments from the public forced the NRC to address this threat. The NRC addressed this concern by stating:

Inclusion of an airborne vehicle was assessed for possible inclusion into the protection goal for this rule. However, protection against this type of threat has not yet been determined appropriate at sites with greater potential consequences than spent fuel storage installations. Therefore, this type of requirement is not included within the protected goal for this final rule.

63 FR 26956 (May 15, 1998).

Simply stated, the NRC sidesteps whether it is appropriate to require protection from an airborne assault at a spent fuel facility because the NRC has yet to decide that that level of protection is needed for the nuclear reactor itself. The NRC did not state what factors would make it necessary to require a licensee

to ever protect a nuclear plant from an airborne terrorist attack. This is so because the NRC has never explained why such a consideration is inappropriate. Instead, the analysis the NRC had adopted to evaluate plane crashes at a nuclear facility is an inherently flawed statistical analysis generally referred to as a "probabilistic risk assessment ("PRA"). A PRA analysis standing alone is inherently flawed because it never addresses or evaluates the possibility of a terrorist attack.(13) Indeed, the arrogance of the part of the NRC to adequately address the risk of a terrorist assault is all too clear from the approach the NRC took in its October, 2000 Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants. Instead of trying to honestly analyze the actual risk from a terrorist attack, the NRC opined without factual basis that had the probability of a terrorist attack been factored into the analysis the end result would likely be a reduction in overall risk of exposure.(14)

Simply stated, because all existing nuclear power plants cannot protect the public from the release of radiological hazards from a plane crash, the NRC improperly permitted nuclear plants to continue to operate under the assumption that there will never be a terrorist airborne assault on a nuclear power facility. This assumption is foolhardy and must end.

Questions of accountability require the NRC to answer the following:

1) How did the United States Nuclear Regulatory Commission ("NRC") evaluate whether existing safeguard measures were capable of preventing a terrorist airborne attack after it became publically known that terrorists were contemplating crashing aircraft into nuclear facilities?

2) When it became public knowledge back in 1995 that terrorists were contemplating crashing planes into nuclear facilities, why didn't the NRC require nuclear plants to begin the hardening process so as to be able to withstand a large commercial air crash?

ALLEGATION II

The NRC knew or should have known that the current design and security measures at the Spent Fuel Pools located at each nuclear power plant are incapable of protecting the population from the catastrophic release of radiation from a potential terrorist attack and immediate and long-term compensatory measures are needed to protect the United States and its citizens.

The existing design and security measures related to nuclear plant "spent fuel pools" ("SFP") present an even greater danger of terrorist attack to the American public. At approximately 18 month intervals, the nuclear fuel is removed from the plant's reactor and placed into a SFP. Ultimately, all of the spent fuel removed from a plant's reactor over the entire operating life of the plant is placed into the SFP. At one decommissioned nuclear facility alone, there is currently 1,018.4 MTU (2.24 million lbs.) of spent fuel being stored in a single SFP. Typically, a SFP structure consists of concrete pool measuring [DELETED] feet long by [DELETED] feet wide and [DELETED] feet high. The SFPs are located seven stories above ground (for a boiling water reactor ("BWR") or at or slightly below ground for a pressurized-water reactor ("PWR"). The pool is typically lined with a stainless steel liners between [DELETED] inch thick . (15) Although the pool is reinforced to prevent leakage, the building which houses the SFP lacks a containment vessel or any physical structure designed to protect the SFP from a terrorist attack. Thus, SFP's are extremely vulnerable to airborne attack, or any attack in which a terrorist organization is able to lodge an explosive into the pool.(16)

Over the life of an operating plant, thousands of pounds of the spent fuel is removed from a plant's reactor and is placed into the SFP. While SFP's were originally designed as temporary holding facilities for this high level radioactive waste, they have become permanent disposal facilities. See, U.S. Nuclear

Regulatory Commission, "Final Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Power Reactor Fuel" (NUREG [DELETED]) (August, 1979), Section 1-1. For example, at Plant [DELETED] alone (which is located [DELETED]), there is currently 1,018.4 MTU (2.24 million lbs.) of spent fuel stored in a SFP. Nationwide, there is over 84 million pounds of radioactive spent fuel at 114 operating or closed nuclear power plants scattered throughout the United States. These storage facilities are located in 35 states and near many major water systems(17) and metropolitan areas.(18) *None of these SFP's contain any security system designed to prevent a major terrorist attack.*

In 1979, the NRC recognized the fact that large quantities of highly dangerous radioactive waste was being stored in the SFPs over long periods of time. In response, the NRC commissioned an Environmental Impact Statement to study the risks related to these waste storage facilities. See, U.S. Nuclear Regulatory Commission, "Final Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Power Reactor Fuel" (NUREG [DELETED]) (August, 1979) (hereinafter, "EIS"). In this EIS the NRC noted that the spent fuel itself was "highly radioactive" and posed a risk for the "catastrophic release of radioactivity" into the environment. EIS pp. 2-2 and 4-13. However, the risk of such a release was considered "extremely low." Specifically, the NRC found that a major accident at a SFP would not occur unless the spent fuel was "released" from the SFP and "dispersed offsite." EIS p. 4-13. According to the NRC, "although the inventory of radioactive materials contained in . . . aged spent fuels may be in the order of a billion curies or more, very little is available in a dispersable form; there is no mechanism available for the release of radioactive materials in significant quantities from the facility." *Id.*

The NRC recognized that three accident scenarios could cause the radioactive materials stored in the SFP to be released offsite in a dispersable form. The NRC discounted each of these scenarios. Based on the amount of evidence now within the public domain regarding the current level of terrorist threat, the NRC's 1979 resolution of each of these three scenarios is seriously flawed and must be revisited. Moreover, because the current permitted design basis for the SFP's were based, in part, on this EIS, the current design basis for these facilities is also flawed and must be corrected. Finally, given the magnitude of the threat to public safety caused by the deficiencies in the 1979 report (and the NRC's failure to update that report), immediate compensatory measures must be enacted to protect the public from a terrorist attack on an SFP.

The three scenarios are as follows:

1. Fires and Explosions: The NRC recognized that "fires and explosions could be the driving force for the dispersion of radioactive materials in finely divided forms" which would result in a major release of radiation into the environment. However, the NRC discounted this risk, because "there is no need for the use of explosive materials" and "operating procedures limit the accumulation of combustible materials such as paper." EIS, p. 4-19. Thus, "serious fires and explosions are not considered credible in" the SFP area. Id.

These assumptions are no longer valid. A devise capable of causing a major fire and/or explosion in a SFP can be delivered into the SFP by either a very small aircraft and/or a land-based suicide bomber. Because the SFP lacks the physical security barriers of a containment building, an attack far less severe

than the attack on either the Pentagon and/or the World Trade Center would result in the massive release of millions of pounds of highly radioactive material into the environment.

Immediate compensatory measures must be required of all nuclear licensees (and/or immediately taken by national or local security forces) in order to prevent a terrorist-induced fire or explosion at a SFP. This would include, but not be limited to, taking immediate measures to prevent aircraft (including very small aircraft) from threatening the SFP.

2. Missile Attack: The NRC correctly noted that, due to the lack of any containment vessel protecting the SFP, the SFP was vulnerable to penetration from an airborne missile. However, the NRC failed to consider the possibility that a terrorist group might launch a missile-type devise at an SFP. Instead, they limited the evaluation of a missile-based accident to a "tornado generated missile that lands in the storage pool." EIS, p. 4-16. Specifically, the only missile evaluated by the NRC was that of a "utility pole" which was carried by a tornado and struck the roof of the SFP at 144 mph. Id. In the NRC's scenario, the missile did not carry an explosive device, and was not constructed of explosive material. Although the utility pole might rupture the fuel, the NRC concluded that there was sufficient time and resources available to take remedial action and prevent the release of radiation into the environment.

Unfortunately, since 1979 the prospect of a missile attack into a SFP is not simply limited to a utility pole being thrust into the SFP by a tornado. Unquestionably, a terrorist organization could use numerous devises to deliver a missile at a speed of 144 mph (or greater) into the roof of a SFP. Instead of being constructed merely of wood or metal, the terrorist missile would presumably contain material capable of setting off a severe explosion or causing a major fire. In either event, the impact on the environment of such an attack could be catastrophic.

Immediate compensatory measures must be required of all nuclear licensees (and/or immediately taken by national or local security forces) in order to prevent a terrorist-induced missile attack on a SFP. This would include, but not be limited to, taking immediate measures to prevent aircraft (including very small aircraft) from delivering a missile into the roof of an SFP.

3. Sabotage: The NRC also recognized that an act of "sabotage" or the actions of a "disgruntled employee or politically motivated group" could pose a "threat" to the SFP. EIS pp. 5-1 and 5-2. However, based on the NRC's understanding of that threat back in 1979, protection against such acts was merely to be "dictated by prudence." EIS, p. 5-2. Specifically, the NRC found that there was an "absence of any evidence indicating the existence of a domestic threat to the nuclear power industry." Id.

Again, the 1979 assumptions simply did not withstand the test of time. Between 1993-95, it was not necessary to review classified security documents to ascertain that terrorist groups or individuals were using high explosives as weapons against domestic buildings (such as the federal building in Oklahoma City and/or the World Trade Center in New York). Moreover, in 1995 one of the masterminds behind the first World Trade Center bombing (and an apparent member of the Al Qaeda terrorist group) admitted that nuclear power plants were on the short-list of terrorist targets. *See, e.g.*, Newsweek, October 1, 2001 at p. 42 ("In the mid-'90s Ramzi Yousef took flying lessons and talked of crashing a plane into . . . [a] nuclear facility"). Obviously, after September 11, 2001, the threats of persons such as Ramzi Yousef , need to be seriously considered.

ALLEGATION III

The NRC Radioactive Material contained in the Spent Fuel Pools are Extremely vulnerable to terrorist attack within six months of a refueling outage. Immediate and long-term compensatory measures are needed to protect the United States and its citizens from an attack on a Spent Fuel Pool within this six month window.

As set forth in the preceding allegation, the SFPs contain high level radioactive waste, the release of which could cause a catastrophic accident. However, the SFP's also present an even more hazardous risk public safety during the six month period following a refueling outage. As previously explained, every 18 months approximately 1/3 of the fuel in a nuclear power plant is removed from the containment vessel and transported into the SFP. At the time of this transfer, the fuel is taken directly from the reactor core, has not significantly decomposed, and is extremely hot and volatile. These supercharged radioactive particles contained in the fuel need approximately six months to decompose into the more stable long term radioactive waste which constitutes the majority of the materials in the SFP. Thus, during that initial six month period, the recently transported hot fuel constitutes an additional public health hazard.

Thus, during the time period immediately following a refueling outage, the SFP contains fuel which was only recently removed from the containment and, in many ways, is just as dangerous. However, the recently removed fuel sits in a SFP, which does not contain the physical protections of a containment. Thus, if a terrorist were to attack the SFP within the six month period surrounding the placement of the fuel into the pool, the resulting release of radiation would not be limited to the massive release of radioactive waste material into the environment, it would also result in other dangerous releases similar to the types of releases which would occur if there were a full blown breech of a containment vessel. Thus, added security measures must be put into effect during the six month time period in which spent fuel is placed into the SFP.

ALLEGATION IV

The NRC must work directly with other security offices in approving compensatory security measures and in approving utility security plans and must re-evaluate its 1979 EIS and 1998 Final Rule regarding SFPs.

The NRC has not properly studied the risk of a terrorist attack and has not required the proper compensatory measures at nuclear power plants or SFPs. Additionally, given the growing sophistication of terrorist groups and the fact that nuclear power facilities are clear terrorist targets, the NRC must be required to work directly with the responsible national and international law enforcement authorities in reviewing/approving security plans.

As a threshold matter, The NRC's reliance upon the 1979 EIS to approve the current design basis for SFPs (and the failure of the NRC to adjust its terrorist attack assumptions over time), demonstrates the NRC's lack of expertise in the area of international terrorism. However, the NRC's recent rulemaking

related to the spent fuel pools clearly demonstrates that the NRC has not properly weighed the risks posed to the American public from a terrorist attack at a nuclear facility.

On August 15, 1995, shortly after the Oklahoma City bombing attack, the NRC published a new proposed rule for "Safeguards for Spent Fuel" facilities. 60 Federal Register 42079 (August 15, 1995). The NRC asked for public comment on its proposed new security regulations.

The proposed rule did not provide any security whatsoever from an "airborne vehicle," such as an airplane attack (either a suicide mission and/or an airborne release of a bomb or missile).

One citizen's group proposed that the NRC consider protecting the public from the hazards of such an attack. Given the lack of any containment vessel protecting the roof of a SFP from easy penetration, such a proposal would have appeared to be based on common sense. However, the NRC rejected this proposal. The NRC based its reasoning **not** on an analysis of the current terrorist threat, but on the fact that the containment vessels themselves were not protected from the devastating effect of an airline crash. The NRC stated as follows:

Inclusion of an airborne vehicle was assessed for possible inclusion into the protection goal for this rule. However, protection against this type of threat has not yet been determined appropriate at sites with greater potential consequences than spent fuel storage installations. Therefore, this type of requirement in not included within the protected goal for this final rule.

63 FR 26956 (May 15, 1998).

This reasoning was seriously flawed. First, the containment vessel may not be protected from an airborne attack, it does not necessary follow that a SFP need not be so protected. Specifically, due to the fact that a very small aircraft could deliver a deadly load to a SFP, SFP's and containment vessels should not be evaluated under the same criteria. Second, after 1995 the terrorist threat changed, and the potential terrorist use of an airborne vehicle radically increased. The NRC simply grandfathered prior studies, without any attempt to update that study and apply new information to the specific structure in question.

Regardless of the wisdom of the 1998 final rule, today that rule is no longer valid. After September 11, 2001, the refusal to incorporate an airborne attack into its security rules is no longer a viable position.

The 1998 final rule pointed to other grave deficiencies in the security rules governing SFPS. These gross deficiencies were based, in large measure, on industry protestations that proposed security rules were "unnecessary and overly burdensome." 63 Federal Register 26956. The NRC Commissioners agreed with most of the industry complaints and downgraded the proposed rules. The proposed 1995 rules were downgraded in 1998 in the following manner:

Explosives Monitoring: In 1995 the NRC staff proposed that SFP's use explosive monitoring equipment to prevent explosives from being improperly transported into the SFP. The NRC Commission agreed with industry's request to reject its own staff's proposal that explosives detection equipment be installed, because of the "burden of maintaining" such equipment. 63 Federal Register at 26957.

Armed Security Guard: The original NRC rule called for the placement of security guards to protect the SFP from attack. Industry officials asked whether the guard or guards had to be armed with weapons. Industry objected to having armed guards. The NRC responded that it "never intended that onsite physical protection personnel" would be armed. Indeed, they informed the industry that the security persons would be "unarmed watchmen," and "not armed guards." 63 Federal Register at 26957.

Number of Security Guards: The original NRC rule proposed that at least two watchmen be on guard at the SFP. Again, based on industry objections, the NRC's final rule only required one unarmed watchman. 63 Federal Register at 26957. ("regarding the staffing levels o f the primary alarm station, the Commission has deleted the specific requirement that the physical protection organization be comprised of at least two watchmen from the final rule").

Redundant Alarm Monitoring: Under the original proposed rule, the NRC staff recommend that "redundant monitoring stations" exist to increase protection at the SFP. The NRC Commission, agreed with industry concern that such a redundant system would be "overly burdensome" and struck this requirement. 63 Federal Register at 26957 ("the Commission agrees that the requirement for redundant alarm stations is excessive").

Security Patrols: The original rule required "random patrols" of the watchmen at lease once every eight hours. Industry objected, and the NRC modified its final rule. Instead of requiring no less than three such patrols per/day, the NRC simply required "daily random patrols." 63 Federal Register at 26957.

As can be seen in the 1998 rule, the NRC did not require any compensatory measures which would realistically protect SFP's from the type of attack witnessed on September 11, 2001 and/or which appear to be within the capability of known terrorist organizations. The NRC must re-evaluate its 1998 rule and its 1979 EIS, and take immediate compensatory and long-term measures to protect the SFP's from the risk of a terrorist attack.

ALLEGATION V

The current background screening requirements which permit "temporary" clearances at nuclear plants do not adequately protect the public.

The NRC currently has detailed regulations concerning the background screening that utilities must use in order to approve an employee "unescorted access" into the secure areas of a nuclear power plant. *See* NRC Regulatory Guide 5.66, "Access Authorization Program for Nuclear Power Plants. These NRC guidelines were incorporated into an industry-wide background screening program managed by the Nuclear Energy Institute ("NEI"). Based on the NRC regulations, NEI adopted NEI 95-01, "Nuclear Power Plant Personnel Access Authorization Standards and Procedures." These procedures are currently in place at all nuclear power plants.

The NRC-NEI procedures were all adopted prior to September 11, 2001. None of these procedures took into consideration the scope of the terrorist threat facing the United States, as demonstrated by the attacks on September 11th. A review of the current regulations governing background screening of employees in the nuclear power industry clearly demonstrates that a number of the procedures are currently deficient. Immediate compensatory measures must be implemented in order to mitigate current deficiencies. In addition, new rules must be implemented updating the security screening process in order to better ensure the safety of nuclear facilities.

Nuclear power must be refueled and serviced on a regular schedule (normally every 18 months). During this refueling schedule, a nuclear facility is particularly vulnerable to terrorist attack. These risks are compounded by relaxed security procedures implemented during the refueling process.

In order to permit utilities to staff-up during outages, the NRC has approved a "temporary" clearance procedure. An employee may obtain a "temporary clearance," good for 180 days, with a minimum background review. This review is extremely lax, and is normally completed within 1-2 days. Additionally, the review is often conducted by outside contractors with questionable training and qualifications. Currently, an individual can obtain "temporary clearance" for "unescorted access" to the security-critical areas of a nuclear power plant if the following conditions are met:

- The identity of a person is verified by "one photo identification";
- The individual passes a psychological assessment;
- A credit check is conducted;
- Recommendation of one "developed character reference." This reference merely must be *supplied* by a reference identified by the applicant;
- The individual is fingerprinted and required to merely *request* an FBI criminal history check;
- Employment references and character references (supplied by the applicant) are checked for the previous one year period.

NEI 95-01 § 5.2.

The following aspects of the temporary process are clearly deficient:

- The identity of the individual should be verified. The presentation of one photo identification is

not sufficient evidence to verify an identity. Immediate compensatory measures must be taken in order to ensure the identity of every employee who is hired at a nuclear power facility;

- The FBI criminal screening process must be *completed* before any unescorted access is granted to any person;

- The employment/character reference screening should cover a five year period, not a one year period;

- The background investigation must be conducted by a well-trained and highly qualified entity;

- The background screening of any foreign national must extend beyond an FBI criminal review, and must also include a review of the criminal record which might have been created in any country in which the person was born or resided. Additionally, a mechanism must be created to ensure that any questionable terrorist-related activity this person might have engaged in outside of the United States can be reviewed.

ALLEGATION VI

The current background screening requirements for long-term clearances at nuclear plants do not adequately protect the public.

There are two immediate deficiencies in the background screening process for permanent employees:

- No program or process for obtaining criminal records or records related to potential terrorist activities conducted in foreign countries.
- The background screening process (for employment and character) only goes back for a five-year period.

These two deficiencies clearly render nuclear power plants vulnerable to employing persons who have been trained as "sleepers" for terrorist organizations. Under the current security requirements, a person who engaged in conduct abroad which would indicate that this person had associations with terrorist groups (or was an actual suspected terrorist) could enter the United States, create a five-year employment and credit history, and obtain employment at a nuclear power plant. Two immediate compensatory measures should be enacted to prevent this from happening, and to ensure that no "sleepers" are currently employed at any nuclear power plant:

- The background screening time period should be increased from five years to fifteen years;
- A process must be established in order to permit security background investigators to obtain

information from foreign intelligence organizations in order to ensure that the applicant's penitential history of terrorist related activities or associations and/or criminal activity can be identified.

- All current employees should be subject to a renewed 15-year background screening. They should also be subject to an immediate review by appropriate intelligence organizations in order to ensure that any questionable international conduct can be identified.
- The background screening process for each plant should be reviewed and approved by an appropriate law enforcement agencies beyond the NRC, such as the FBI, with input from intelligence and other agencies.

ALLEGATION VII

The NRC ended the public's ability to effectively challenge the NRC's decision not to require nuclear power plants to be able to withstand airborne assaults by changing its rules allowing nuclear plants to obtain new 40 year licenses without permitting citizens to challenge "generic" concerns, including risks from terrorist attack.

The public's right to participate in oversight hearings and to subject the NRC's final decision making process to judicial review is extremely limited. Historically, whenever a nuclear plant had to obtain a new license from the NRC the public had been granted the right to intervene in the licensing process to ensure that the plant could be operated safely. For example, one successful safety challenge was initiated at the Comanche Peak nuclear power station. After the NRC had given the green light to license the plant, local citizens challenged the safety of the plant. This public scrutiny resulted in forcing the owner of the plant to spend an additional ten billion dollars to make necessary design changes to the plant structures that the NRC had already said were safe.

By the late 1990's many of America's existing nuclear plants had to apply for new licenses because the original 40-year licenses were going to expire. For the first time in decades public interest groups were going to be able to again scrutinize the existing design basis of America's nuclear power plants to see if they could still be considered safe. With global terrorism already at America's doorstep, public interest groups planned to challenge "generic" safety concerns that affected all of America's aging nuclear facilities. One substantial generic concern being raised by public interest organizations was the ability of a nuclear plant to withstand an airborne assault on its structures, including its spent fuel pools (which by now were filled with decades worth of nuclear waste). This challenge was never permitted to happen because the NRC, with the support and urging of the nuclear industry, abruptly changed the public's right to conduct a hearing on any and all "generic" issues that could affect the ability of a nuclear plant to continue to operate safely. The NRC created a fast track re-licensing procedure and specifically prohibited the public from raising "generic" challenges to the re-licensing of a nuclear power plant. By freezing out public debate on generic issues, NRC Staff has effectively sidestepped citizen concerns posed by airborne vehicles. Without access to a meaningful licensing hearing on "generic" concerns, the NRC ended the public's ability to challenge the inaction of the NRC.

REQUEST FOR RELIEF

Nuclear power plants were not designed to protect the public from major terrorist attacks. Many plants were located directly on environmentally significant water systems necessary to sustain the health of the United States, such as the Great Lakes and Chesapeake Bay. Additionally, nuclear power plants are

located within the evacuation zone of major cities and airports. Thus, nuclear power plants are sited, nationwide, in areas that are extremely susceptible to airborne attack. Likewise, these plants are located near many major metropolitan areas and/or water systems. Thus, a successful terrorist attack at these plants not only would release large amounts of highly radioactive material into the environment, causing immediate and long term damage to human health, but the economic and ecological impact would be immense.

Based both on the direct statements by actual terrorists who have indicated that nuclear power plants are among the institutions they have currently targeted for attack, combined with the lessons learned from the attacks of September 11th (and before), immediate and long-term compensatory measures must be implemented to protect the United States and its people from the catastrophic impact that would result from even one successful terrorist attack on a nuclear power plant and/or a spent fuel pool.

Petitioners here request the following relief:

- That the NRC ensure that the following compensatory measures are *immediately* implemented:
    - No-fly zones are created at every nuclear power plant/spent fuel pool;
    - These no-fly zones must be wide enough to protect a plant from airborne load well within an acceptable margin of safety. This margin of safety should be based on a scenario in which two smaller aircraft are flown into a spent fuel pool and/or a ground-based assault on a spent fuel pool results in a compromise into the physical integrity of the roof of a spent fuel pool, and a small craft either crashes into the pool and/or a secondary explosive material is dropped into the pool sufficient to breech the integrity of the fuel rods and either destroy the pool or physically eject fuel rods from the pool into the surrounding environment;
    - The 1998 rule regarding spent fuel pool security must be immediately augmented in order to: (a) meet the requirements set forth in the 1995 proposed rule; (b) require armed security guards at spent fuel pools sufficient to withstand a ground-based attack in which a suicide bomber(s) attempted to enter the spent fuel pool building and place an explosive into the pool in which could result in a breech to the fuel rods and the propulsion of the rods into the local environment;
    - Review all current security plans in light of the September 11th attacks, and adopt generic and/or plant specific modifications, as necessary;
    - Adopt procedures in which appropriate law enforcement agencies review and approve all security related programs and systems. These reviews should be undertaken by non-NRC security/law enforcement organizations (such as the FBI and CIA) with current information regarding weapons and tactics for which terrorist organizations may employ within the United States.

- Implement the revised background screening process as set forth in this petition.

- Any plant which cannot be protected by these compensatory manures must be immediately closed.

- In addition to compensatory measures set forth above, the following permanent rules should be placed into effect:
  - The containment of any new nuclear power plant must be designed and build in order to withstand two airborne attacks by a large size aircraft;

  - The containment of any nuclear power plant whose current operating license will expire must be strengthened in order to withstand two airborne attacks by a large size aircraft in order to obtain a new or renewed operating license;

  - The spent fuel pools must be re-designed and re-built in order to withstand a crash load of one large sized aircraft. The spent fuel pools for any new or re-licensed plant must be designed and constructed in order to withstand two airborne attacks by small to medium sized aircraft;

  - The containment vessel for each operating plant must be reinforced, to the largest practical degree, in order to ensure that the containment can withstand the force of a large aircraft impacting the containment at its most vulnerable point traveling at its maximum attainable speed with a full complement of fuel;

  - Long term compensatory measures must be implemented at all currently licensed nuclear power plants consistent with the compensatory measures set forth in part "A" above;

  - Every licensed nuclear power facility (including operating plants and spent fuel pools) must present their current security plans to appropriate law enforcement authorities independent of the NRC for review and approval. These independent authorities could consist of the FBI (for a review of security plans in light of the known domestic threat) and the CI (for review in light of the known international threat). Thereafter, the security plans of each operating plant must be reviewed and approved on an annual basis in to ensure that new information on the terrorist capabilities are incorporated into the security plant;

  - All airports in the area surrounding every nuclear facility must be reviewed in order to

ensure that activities conducted at these airports do not constitute a potential source for an airborne attack;

- All nuclear plant security plans must be evaluated and upgraded in light of the potential instruments of destruction which are reasonably within the scope of conduct of a terrorist or terrorist organization operating within the United States. This would include, but not be limited to, ensuring that plants and waste storage facilities are secure, within a reasonable margin of safety, from missile attack, suicide bomber attack, attacks based on individuals who have obtained access to the restricted areas and biological attack.

- Any final rule related to upgraded security should be subject to public hearings on security issues prior to the implementation of the final rule. These hearing must be "on-the-record" and subject to the current requirements set forth in 10 C.F.R. Part 2.

- The granting of any license amendments, new licenses or renewed licenses for the operation of a nuclear power plant should be subject to public hearings on security issues prior to the final approval of any such licensing decisions. These hearing must be "on-the-record" and subject to the current requirements set forth in 10 C.F.R. Part 2.

- Rules must be implemented in order to ensure that utilities do not improperly use security requirements for improper purposes and the penalties for violations of security procedures must be substantially increased.

Finally, Petitioners hereby request the right to an on-the-record hearing regarding all matters referenced in this petition.

Respectfully submitted,

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1. See LA Times ("Federal Regulators Reviewing Security at Nuclear Power Plants") (September 22, 2001).

2. SeeCBC News Transcript, Oct. 14, 2001 7:00 PM Broadcast, Headline: Nuclear reactors; safety and security of the nation's nuclear power plants in the wake of September 11th terrorist attacks.

3. SeeABC News ("Officials Assure Nuclear Plants are Safe from Attack") (October 22, 2001).

4. Recently, industry spokespersons seek to flaunt a 1989 test where a F-4 jet fighter was slammed into a cement retaining wall causing little damage to the cement structure. It appears that the cement structure used during the test was 12 feet thick and weighed 1 million pounds. The crash resulted in a small spalling crater while moving the cement structure 5 feet backwards. The F-4 fighter used in the crash weighed 42,000 lbs. By comparison, a Boeing 747 can weigh as much as 875,000 lbs. at takeoff. While it appears that the plane used in the test was not loaded with jet fuel, a F-4 fighter can hold up to1,986 gallons of fuel on board. By comparison, a Boeing 747 can hold up to 57,285 gallons of jet fuel.

5. Excerpts from this NUREG, including the figures 13-15, are appended hereto.

6. While speeds below [DELETED MPH might not deliver the maximum impact force to primary containment, lower speeds of approximately [DELETED] MPH would likely still be able to deliver a sufficient force to breach primary containment.

7. A nuclear plant's primary containment structure is designed to withstand [DELETED] psi.

8. In this regard the NUREG specifically states:

Since the calculated collapsed load was assumed to be distributed over a certain contained area, the impacting total load corresponding to a range of [DELETED] results in [DELETED], using the peak load-velocity relationship; the crushing velocity of a large commercial airplane which the structure under consideration [the outer containment dome] could still sustain may be between [DELETED]. If the impact velocity further increases, part of the energy (not absorbed by the structure) will be retained in the falling object. Figure 15 shows the maximum remaining loads as a function of crash velocity. Within the velocity range of [DELETED], only part of the peak load may act on the structure, but **over [DELETED] km/hr the total peak load must be used**. (Emphasis added)

9. See NUREG/CR [DELETED] at pp. 75-77 ("in the case of an impact on a double enveloped containment structure it may be possible to deposit a significant adequate quantity of fuel between the two envelopes. The subsequent vaporization and ignition of the resulting vapor-air mixture could lead to

a rather violent explosion environment and impose upon the primary containment relatively severe loads. These loads are different in character than those imposed by the impact process, but may be **just as severe** . . .the blast environment [DELETED] will be equivalent to the detonation of approximately [DELETED] lb of TNT")(emphasis added).

10. See, e.g., Newsweek, October 1, 2001 at p. 42 ("In the mid-'90s Ramzi Yousef took flying lessons and talked of crashing a plane into . . . [a] nuclear facility").

11. See LA Times ("Federal Regulators Reviewing Security at Nuclear Power Plants") (September 22, 2001).

12. See Washington Post (Security of Nuclear Power Plants Under Review, September 26, 2001).

13. According to the NRC: PRA analyses in general do not include events due to sabotage. No established method exists for estimating the likelihood of a sabotage event. Nor is there a method for analyzing the effect of security provisions on that likelihood" and the NRC "maintains that there is currently not an acceptable methodology available to access the probability of terrorist activity." See Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants (October 2000), at pp. 4-14 and A6-24.

14. According to the report: "Consistent with PRA limitations and practice, contributions to risk from safeguards events [i.e., terrorist attacks and sabotage] are not included in these frequency estimates. E[mergency] P[lan] might also provide dose savings in such events." Id., at p. 3-9 at fn. 8 (emphasis added).

15. See [DELETED].

16. The NRC admits that 50% of all the planes flying in airspace over the United States are deliver enough force on impact to penetrate a SFP's five-foot-thick reinforced concrete wall causing a catastrophic accident by draining the water in the spent fuel pool See NRC Technical Study of Pent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants (October 2000) at p. 3-23.

17. *See*, *e.g.*, Calvert Cliffs (Chesapeake Bay), Fitzpatrick (Lake Ontario), Pilgrim (Cape Cod Bay), Indian Point (Hudson River), Waterford (Mississippi River), Peach Bottom (Susquehanna River), Quad Cities (Mississippi River), Crystal River (Gulf of Mexico), Cook (Lake Michigan), Nine Mile Point (Lake Ontario), Kewaunee (Lake Michigan), Point Beach (Lake Michigan), Salem (Delaware River), Ginna (Lake Ontario),

18. *See*, *e.g.* Turky Point (Miami), South Texas Project (Houston), Calvert Cliffs (Washington, D.C.), San Onofre (Los Angles), Palo Verde (Phoenix), Beaver Valley (Pittsburgh), Fort Calhoun (Omaha), Palisades (Chicago), Fermi (Detroit), Indian Point (New York).