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USNRC

March 5, 2002 (2:51PM)

**UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
BEFORE THE COMMISSION**

**OFFICE OF SECRETARY  
RULEMAKINGS AND  
ADJUDICATIONS STAFF**

In the Matter of: : Docket No. 50-423-LA-~~2~~ 3  
DOMINION NUCLEAR : ASLBP No. 00-771-01-LA  
CONNECTICUT, INC. :  
(Millstone Nuclear Power Station, :  
Unit No. 3; Facility Operating :  
License NPF-49) :

**CONNECTICUT COALITION AGAINST MILLSTONE AND  
LONG ISLAND COALITION BRIEF IN RESPONSE TO CLI-02-05  
REGARDING NEPA REQUIREMENT TO ADMIT CONTENTION  
REGARDING ENVIRONMENTAL IMPACTS OF  
ACTS OF MALICE AND INSANITY**

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February 27, 2002

Template = SECY-021

SECY-02

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**I. INTRODUCTION**

Pursuant to Memorandum and Order CLI-02-05 (February 6, 2002), Connecticut Coalition Against Millstone ("CCAM") and the Long Island Coalition Against Millstone ("CAM") (collectively "CCAM/CAM" or "Intervenors") hereby present a brief addressing the validity of the Atomic Safety and Licensing Board's ("ASLB's") decision in LBP-02-05, Memorandum and Order (Late-Filed Contention Concerning Acts of Terrorism Affecting Spent Fuel Pool) (January 24, 2002). In LBP-02-05, the ASLB denied the admission of a contention challenging the Nuclear Regulatory Commission ("NRC" or "Commission") Staff's failure to prepare an Environmental Impact Statement ("EIS") that considers potential consequences of acts of malevolence or insanity that affect the Millstone 3 spent fuel pools, before permitting Dominion Nuclear Connecticut, Inc. ("DNC") to expand its spent fuel pool storage capacity at the Millstone Unit 3 nuclear power plant. The ASLB found that 10 C.F.R. § 50.13, and NRC decisions applying the

rule's policy in cases interpreting the National Environmental Policy Act ("NEPA"), bar consideration of the contention. The ASLB also referred its decision to the Commission.

As discussed below, the ASLB's ruling is incorrect. The NRC's longstanding policy of refusing to consider the consequences of acts of malevolence and insanity in EIS's has never been in conformance with NEPA. Moreover, setting aside questions regarding the validity of the NRC's previous interpretations of NEPA, various developments during the past several years, culminating in the terrorist attacks of September 11, have conclusively demonstrated that the NRC no longer has any rational basis for continuing to ignore the potential for acts of malevolence or insanity in evaluating the environmental impacts of and alternatives to its proposed licensing actions. Moreover, in the case of spent fuel pool expansion, recently published significant new information about the behavior of fuel pools under accident conditions that involve a loss of water shows that spent fuel pools are more vulnerable to severe accidents than the NRC previously thought. This information further confirms that NEPA requires the preparation of an EIS before spent fuel pool expansion may be permitted.

The preparation of an EIS for the Millstone 3 spent fuel pool expansion would be neither idle nor academic. Design alternatives exist which would mitigate the impacts of a wide range of acts of malice or insanity at the Millstone site. Using an appropriately robust dry storage facility would substantially reduce the vulnerability of the Millstone spent fuel to acts of sabotage or terrorism. Acts of malice or insanity committed against a dry storage installation could release only a fraction of the radioactive material that could be released from the Millstone spent fuel pools. It is much easier to drain a spent fuel



pool and cause a release than it is to penetrate and release the radioactive contents of dry casks holding the same amount of spent fuel.

In addition to addressing the ASLB's decision in LBP-02-05, this brief responds to the general question posed in CLI-02-05: what are the responsibilities under the National Environmental Policy Act ("NEPA") of an agency, such as the NRC, to consider intentional malevolent acts such as those directed at the United States on September 11, 2001? The unequivocal answer is that in any major action by the NRC or any other federal agency, NEPA requires a thorough analysis of the reasonably foreseeable environmental impacts of acts of malice or insanity that may have a significant effect on the environment. The analysis must include the impacts of such acts, and an evaluation of the alternatives that could avoid or mitigate such impacts.

High-density storage of spent fuel in a pool, as at Millstone Unit 3, creates the potential for a massive release of radioactive material to the environment, which would have catastrophic consequences. Initiation of this release requires nothing more than a loss of water from the pool, which is a reasonably foreseeable event that could arise from a range of potential acts of malice or insanity. Thus, the proposed expansion of pool capacity at Millstone Unit 3 must trigger the preparation of an EIS that considers potential acts of malice or insanity.

## **II. FACTUAL AND PROCEDURAL BACKGROUND**

### **A. Millstone Spent Fuel Pool Expansion License Amendment Proceeding**

Millstone Unit 3 is a 1,150-MW pressurized water reactor located on the coast of Connecticut. On March 1999, the then-licensee, Northeast Nuclear Energy Company ("NNECO") filed a license amendment application seeking to increase the storage

capacity of the Millstone Unit 3 spent fuel pool ("SFP") from 756 assemblies to 1860 assemblies. The license was subsequently transferred from NNECO to DNC, which continues to pursue the license amendment request.

CCAM/CAM petitioned to intervene in the proceeding, and gained admission of several technical contentions regarding criticality prevention. *See* LBP-00-02, 51 NRC 25, 32-41 (2000). In LBP-00-02, the ASLB also rejected several of CCAM/CAM's contentions as inadmissible, including four environmental contentions which together charged that the proposed license amendment would increase the likelihood and consequences of a severe accident in the fuel pool, such that the NRC should be required to prepare an EIS to address the impacts of and alternatives to spent fuel pool storage. *See* 51 NRC at 43-46.

Following a Subpart K proceeding, the Licensing Board issued LBP-00-26, which dismissed CCAM/CAM's pending criticality prevention contentions and terminated the proceeding. *See* 52 NRC 181 (2000). On November 13, 2000, the Intervenors petitioned the NRC Commissioners for review of LBP-00-26. On January 17, 2001, the NRC Commissioners granted the Petition for Review of LBP-00-26. *See Northeast Nuclear Energy Co. (Millstone Nuclear Power Station, Unit 3)*, CLI-01-03, 53 NRC 22.

On November 16, 2000, three days after CCAM/CAM filed their petition for review of LBP-00-26, NNECO informed the NRC that it was unable to account for two spent fuel rods at Millstone Unit 1.<sup>1</sup> CCAM/CAM moved the Licensing Board to reopen

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<sup>1</sup> The NRC has publicly acknowledged that NNECO's disclosure that it has lost track of irradiated fuel rods, as reported in License Event Report (LER) 2000-002-00 on docket 50-245 on November 16, 2000, is unprecedented in the U.S. commercial nuclear industry.

the proceedings for further development of the record with respect to the missing spent fuel rods on December 18. After initially denying the motion, the ASLB reconsidered and granted the motion in LBP-01-17, 53 NRC 398 (2001).

## **B. CCAM/CAM's Motion to Reopen and Contention**

On November 1, 2001, CCAM/CAM filed a motion to reopen the record and admit a late-filed contention calling for the preparation of an EIS to address the consequences of acts of malevolence or insanity against the Millstone 3 spent fuel pools.<sup>2</sup> The contention stated as follows:

**Contention:** In the Environmental Assessment ("EA") prepared by the NRC Staff in support of the proposed license amendment, the Staff concluded that the proposed expansion of spent fuel storage capacity at the Millstone nuclear power plant will not have a significant adverse effect on the quality of the human environment. Northeast Nuclear Energy Company (NNECO), et al., Millstone Nuclear Power Station, Unit No. 3, Environmental Assessment and Finding of No Significant Impact, 64 Fed. Reg. 48,675 (September 7, 1999). Therefore, the Staff decided not to prepare an Environmental Impact Statement ("EIS") for the proposed license amendment. *Id.*

In the EA, the Staff did not examine the potential for acts of malice or insanity against the Millstone 3 fuel pool leading to a pool fire. The Staff's failure to examine this set of environmental impacts apparently was based on the agency's longstanding position that severe spent fuel pool accidents are not foreseeable, and that acts of malice and sabotage are so unpredictable as to be incapable of analysis in an EIS. *See Philadelphia Electric Co. (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 697-701 (1985), aff'd on this ground and rev'd on other grounds, Limerick Ecology Action v. NRC, 869 F.2d 719, 743-44 (3<sup>rd</sup> Cir. 1989).*

The terrorist attacks of 11 September 2001 on the World Trade Center and the Pentagon, and related information which has subsequently become public, provide new information which demonstrates conclusively that the NRC's rationale is mistaken and must be abandoned. They also show that circumstances have changed significantly with respect to the imminence of the terrorist threat. It is now obvious that determined, carefully-planned and highly destructive acts of malice pose an immediate threat to the United States. The particular acts of

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<sup>2</sup> See Connecticut Coalition Against Millstone and Long Island Coalition Against Millstone Motion to Reopen the Record and Request for Admission of Late-Filed Environmental Contention (November 1, 2001) (hereinafter "CCAM/CAM Motion").

malice of 11 September 2001 involved the use of weapons -- large, fuel-laden aircraft -- that no nuclear power plant in the United States, including the Millstone Unit 3 plant, is designed to withstand. Available information indicates that acts of malice or insanity, including but not limited to the impact of a large, fuel-laden aircraft, could cause a substantial loss of water from the Millstone Unit 3 spent fuel pool, leading to the onset of exothermic oxidation reactions in that pool. This information was not available when the NRC prepared NUREG-0575, the NRC's Generic Environmental Impact Statement ("GEIS") on spent fuel storage, which concludes that the likelihood of an accident in high-density spent fuel storage pools is not foreseeable.

Other significant new information consists of the Staff's recent concessions that: (a) loss of water from a high-density spent fuel pool can lead to the onset of exothermic oxidation reactions for spent fuel of any age after discharge from a reactor; (b) the onset of exothermic oxidation reactions can be assumed if the water level in a pool declines to the level of the top of the spent fuel racks; and (c) the onset of exothermic oxidation reactions in one pool is likely to lead to the onset of similar reactions in nearby pools. This new information establishes that in the event of an act of malice or insanity which causes uncovering of the fuel in the Millstone pools, a severe pool accident involving a significant offsite release may be assumed as inevitable. The consequences of such an accident in the Millstone pools could be significantly greater under the proposed license amendment, given the significant expansion of the radioactive inventory of the pools that would be permitted by the license amendment.

Accordingly, the Staff must prepare an EIS that fully considers the environmental impacts of the proposed license amendment, including its effects on the probability and consequences of accidents at the Millstone plant. A credible analysis would differ from current PRA practice in that it would consider events -- including acts of malice and insanity and other events -- for which the estimation of probability has been regarded as difficult or impossible. Causative events that must be considered include all events that could cause a loss of water, including (a) acts of malice or insanity by persons within or outside the plant boundary; (b) aircraft impact, with or without an accompanying fuel-air explosion; (c) earthquake; (d) drop of a fuel transfer cask or shipping cask; (e) a severe accident at a nearby reactor or spent fuel pool which, through the spread of radioactive material and other influences, precludes the ongoing provision of cooling and/or water makeup to the affected pool; and (f) an explosion inside or outside the plant buildings. The EIS should also include consideration of all physically realisable modes of water loss, including leakage, evaporation, siphoning, pumping, displacement by objects falling into the pool, or overturning of the pool. The assessment would not be credible if it arbitrarily considered only a subset of the physically realisable combinations of causative events and modes of water loss.

As required by NEPA and Commission policy, the EIS should also examine the costs and benefits of the proposed action in comparison to various

alternatives, including Severe Accident Mitigation Design Alternatives (“SAMDA”) and the alternative of dry storage.<sup>3</sup>

The basis for the contention went into more detail to support the assertions made in the contention itself.<sup>4</sup> The contention also was supported by the expert declaration of Dr. Gordon Thompson, an expert in the technical analysis of safety and environmental issues related to nuclear facilities.<sup>5</sup> DNC and the NRC Staff opposed the motion and the admissibility of the contention.<sup>6</sup> With the permission of the ASLB, CCAM/CAM replied.<sup>7</sup>

On January 24, 2002, the ASLB issued LBP-02-05. The ASLB denied admission of the contention, based on:

the bar against considering contentions of this sort set forth in 10 C.F.R. § 50.13, together with decisions applying the policy of that section to environmental contentions such as this one, *e.g.*, *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 697-701 (1985), *review declined*, CLI-86-5, 23 NRC 125, *aff’d sub nom. Limerick Ecology Action Inc. v. NRC*, 869 F.2d 719, 744 (3d Cir. 1989); *Long Island Lighting Co.* (Shoreham Nuclear Power Station), ALAB-156, 6 AEC 831, 851 (1973).<sup>8</sup>

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<sup>3</sup> See CCAM/CAM’s Motion to Reopen at 6-8.

<sup>4</sup> The basis for the contention is found at pages 9-20 of CCAM/CAM’s Motion to Reopen.

<sup>5</sup> See Declaration of 31 October 2001 by Dr. Gordon Thompson in Support of a Motion by CCAM/CAM (October 31, 2001) (“Thompson Declaration”).

<sup>6</sup> See Dominion Nuclear Connecticut, Inc.’s Response to Connecticut Coalition Against Millstone and Long Island Coalition Against Millstone Motion to Reopen the Record and Request for Admission of Late-Filed Environmental Contention and Motion for Directed Certification (November 13, 2001) (hereinafter “DNC Response”); NRC Staff Response Opposing the Motion of Connecticut Coalition Against Millstone/Long Island Coalition Against Millstone to Reopen the Record to Admit a Late-filed Environmental Contention (November 16, 2001) (hereinafter “Staff Response”).

<sup>7</sup> See Connecticut Coalition Against Millstone And Long Island Coalition Against Millstone Reply To Oppositions To Motion To Reopen The Record And Request For Admission Of Late-Filed Environmental Contention (December 21, 2001).

<sup>8</sup> The ASLB concluded that CCAM/CAM had met the NRC’s standards for reopening the record and the acceptance of late-filed contentions. See LBP-02-05, slip

LBP-02-05, slip op. at 2. *See also id.*, slip op. at 19 (“the Commission’s current policy is to apply 10 C.F.R. § 50.13 to environmental contentions.”)

As the ASLB recognized, the decisions cited above “reflect policy choices adopted by the Commission during an earlier time frame.” *Id.* Noting that the Commission has other similar cases before it, the ASLB referred its decision to the Commission “for its review and policy guidance.”<sup>9</sup> *Id.*

On February 6, 2002, the Commission issued Memorandum and Order CLI-02-05. The order directed the parties to “address all issues that the parties determine are relevant” to the lawfulness of the ASLB’s decision under NEPA. *Id.*, slip op. at 2. In addition, the parties were addressed to address the question of: “What is an agency’s responsibility under NEPA to consider intentional malevolent acts such as those directed at the United States on September 11, 2001?” *Id.*

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op. at 5-13. As per the Commission’s instructions in CLI-02-05, slip op. at 2 note 2, this brief does not address the “procedural” issues related to CCAM/CAM’s satisfaction of the standard for reopening the record and admitting a late-filed contention.

<sup>9</sup> At the time LBP-02-05 was decided, the Commission had before it one other case involving the admissibility of a contention relating to acts of malice or insanity: *Private Fuel Storage, L.L.C.* (Independent Fuel Storage Installation), LBP-01-35, 54 NRC \_\_\_\_ (December 6, 2001). Since then, the Commission has also taken interlocutory review of two other similar contentions, in *Duke Cogema Stone & Webster* (Savannah River Mixed Oxide Fuel Fabrication Facility), LBP-01-35, 54 NRC \_\_\_\_, slip op. at 52-53 (December 6, 2001); and *Duke Energy Corp.* (McGuire Nuclear Station, Units 1 and 2), Catawba Nuclear Station, Units 1 and 2), LBP-02-04, 55 NRC \_\_\_\_ (January 24, 2002).

### III. ARGUMENT

#### A. Statutory and Regulatory Framework

##### 1. General requirements of NEPA

NEPA is the “basic charter for protection of the environment.” 40 C.F.R. § 1500.1(1). Its fundamental purpose is to “help public officials make decisions that are based on understanding of environmental consequences, and take decisions that protect, restore and enhance the environment.” *Id.* NEPA requires federal agencies to examine the environmental consequences of their actions *before* taking those actions, in order to ensure “that important effects will not be overlooked or underestimated only to be discovered after resources have been committed or the die otherwise cast.” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989).

The primary method by which NEPA ensures that its mandate is met is the “action-forcing” requirement that a “detailed statement” be prepared before a federal agency takes any major action which may significantly affect the quality of the human environment. *Robertson*, 490 U.S. at 348; 42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1502.1. This statement, known as an Environmental Impact Statement (“EIS”), must describe, among other things, (1) the “environmental impact” of the proposed action, (2) any “adverse environmental effects which cannot be avoided should the proposal be implemented,” (3) any “alternatives to the proposed action,” and (4) any “irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented . . .” *Id.* The EIS must be circulated for comment by the public and other affected agencies, in order to assure that relevant environmental information will “be made available to the larger audience that may also play a role in

both the decisionmaking process and the implementation” of a proposed decision.

*Robertson*, 490 U.S. at 349.

## **2. Scope of impacts that must be considered**

The environmental impacts that must be considered in an EIS include “reasonably foreseeable” impacts which have “catastrophic consequences, even if their probability of occurrence is low.” 40 C.F.R. § 1502.22(b)(1). Environmental risks may be ignored if they are “remote and speculative.” See *Limerick Ecology Action*, 869 F.2d at 745, citing *Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Counsel, Inc.*, 435 U.S. 519, 551 (1978).

The fact that the likelihood of an impact may not be easily quantifiable is not an excuse for failing to address it in an EIS. NRC regulations require that: “[t]o the extent that there are important qualitative considerations or factors that cannot be quantified, these considerations or factors will be discussed in qualitative terms.” 10 C.F.R. § 51.71(d).

Further, as provided in the Council on Environmental Quality’s regulations implementing NEPA, 40 C.F.R. § 1502.22, an agency must make an attempt to evaluate reasonably foreseeable significant adverse impacts, even if quantitative information about the impacts is unavailable. The agency must acknowledge that the information is unavailable, make a statement of the relevance of the information to the evaluation of impacts in the EIS, summarize existing relevant and credible scientific evidence, and



provide the agency's evaluation of the impacts based on generally accepted theoretical approaches or research methods.<sup>10</sup>

### 3. Requirement to Update and Revisit Outdated Analyses

A federal agency "has a continuing duty to gather and evaluate new information relevant to the environmental impact of its actions." *Warm Springs Dam Task Force v. Gribble*, 621 F.2d 1017, 1023-24 (9<sup>th</sup> Cir. 1980), citing 42 U.S.C. § 4332(2)(A), (B); *Essex County Preservation Association v. Campbell*, 586 F.2d 956, 960-61 (1<sup>st</sup> Cir. 1976); *Society for Animal Rights, Inc. v. Schlesinger*, 512 F.2d 915, 917-18 (D.C. Cir. 1975). As the Courts have held, where aspects of a proposed action are addressed by a previously prepared EIS, a new EIS must be issued if there remains "major federal action" to occur, and if there is new information showing that the remaining action will affect the quality of the human environment "in a significant manner or to a significant extent not already considered." *Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 374 (1989).<sup>11</sup>

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<sup>10</sup> While a number of courts have ruled that the CEQ regulations are not binding on the NRC, *see, e.g., Limerick Ecology Action v. NRC*, 869 F.2d at 743, the Commission itself has recognized that the CEQ regulations are entitled to "substantial deference." *Long Island Lighting Co. (Shoreham Nuclear Power Station, Unit 1)*, CLI-91-2, 33 NRC 61, 72 (1991). Moreover, the Commission recognized that the only legitimate ground on which the NRC can ignore the CEQ regulations is when they "have a substantive impact on the way the agency performs its regulatory functions." *Id.*, citing 49 Fed. Reg. 9352 (March 12, 1984). *See also Andrus v. Sierra Club*, 442 U.S. 347, 357 (1979), which pointed out that Executive Order 1191 orders all federal agencies to comply with the regulations to be adopted by the CEQ after consultation with affected agencies. Executive Order 1191 also states that the only exception to this requirement is where compliance would be "inconsistent with statutory requirements." *Id.*, § 2, 3 NRC 124 (1978).

<sup>11</sup> *See also* 10 C.F.R. § 51.92(a), which requires supplementation where the proposed action has not been completed, if: "(1) there are substantial changes in the proposed action that are relevant to environmental concerns; or (2) There are significant

It also follows from *Marsh* that NRC or judicial decisions regarding the significance of environmental impacts in a given case do not have the same precedential value as, for instance, decisions interpreting the safety requirements of the Atomic Energy Act. Rather, in each new case it is appropriate to examine whether the factual considerations undergirding previous NEPA decisions still apply under the NEPA “rule of reason.” In this case, it has been argued that a number of previous NRC and court decisions bar consideration of Contention 12. NEPA precludes the blind application of these precedents, however, and requires the Commission to determine whether the factual considerations on which they rely continue to be applicable under current circumstances. To the extent that these previous decisions rely on “stale scientific evidence,” they cannot be relied on for precedential value in this case. *Cf. Seattle Audubon Society v. Espy*, 998 F.2d 699, 704-05 (9<sup>th</sup> Cir. 1993) (requiring Forest Service to re-examine its chosen alternative where Final EIS relied on stale and incomplete evidence).

**B. The ASLB Erred in Concluding that 10 C.F.R. § 50.13 Bars Consideration of CCAM/CAM’s Environmental Contention As a Matter of Law.**

In LBP-02-05, the ASLB found that CCAM/CAM’s environmental contention was “barred” by 10 C.F.R. § 50.13, which states that an applicant for an operating license or amendment is not required to provide:

design features or other measures for the specific purpose of protection against the effects of (a) attacks and destructive acts, including sabotage, directed against the facility by an enemy of the United States, whether a foreign government or other person, or (b) use or deployment of weapons incident to U.S. defense activities.

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new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.” Although § 51.92 technically does not apply here, where the action proposed in the original EIS for operation of Millstone has already been taken, the criteria provide applicable guidance for these circumstances.

Contrary to the ASLB's conclusion, this regulation does not automatically exclude the impacts of destructive acts of malice by an enemy of the United States from the category of environmental impacts that must be considered in an EIS. The ASLB's ruling is incorrect in several respects.

First, it is not possible that the Commission had any intention that 10 C.F.R. § 50.13 would apply to bar consideration of issues related to its subject matter in an environmental contention, because 10 C.F.R. § 50.13 was promulgated in 1967, before passage of the National Environmental Policy Act of 1969.

Second, 10 C.F.R. § 50.13 is a safety regulation promulgated under the general authority of the Atomic Energy Act. *See* Final Rule, Exclusion of Attacks and Destructive Acts by Enemies of the U.S. in Issuance of Facility Licenses, 32 Fed. Reg. 13,445 (September 26, 1967). Section 50.13 essentially provides that an "adequate protection" finding under the Atomic Energy Act need not include a finding of adequate protection against the effects of attacks and destructive acts by an enemy of the United States. However, a finding of compliance with the "no undue risk" standard of the Atomic Energy Act is not the automatic equivalent of a determination of no significant impact under NEPA. As the U.S. Court of Appeals for the Third Circuit explained in *Limerick Ecology Action v. NRC*, 869 F.2d 719, 729 (3<sup>rd</sup> Cir. 1989):

[t]he language of NEPA indicates that Congress did not intend that it be precluded by the AEA. Section 102 of NEPA requires agencies to comply 'to the fullest extent possible.' 42 U.S.C. § 4332. Although NEPA imposes responsibilities that are purely procedural, *Vermont Yankee*, 435 U.S. at 558, 98 S.Ct. at 1219, there is no language in NEPA itself that would permit its procedural requirements to be limited by the AEA. Moreover, there is no language in the AEA that would indicate AEA precludes NEPA.

In keeping with this reasoning, the Court also rejected the NRC's specific argument that issues excluded from consideration under the Atomic Energy Act must also be excluded under NEPA:

In *Citizens for Safe Power, Inc. v. NRC*, 524 F.2d 1291, 1299 (D.C. Cir. 1975), the court indicated that where the concerns under the AEA and NEPA are the same, conclusions reached on the basis of evidence received in 'environmental' hearings conducted under NEPA may be applied to 'health and safety' considerations under the AEA. As the Court stated, to hold otherwise would amount to 'stultifying formalism.' The court did not indicate, however, that when issues are excluded from consideration under the AEA they must also be excluded under NEPA. In contrast, the court noted, albeit in dictum, that it is 'unreasonable to suppose that [environmental] risks are automatically acceptable, and may be imposed upon the public by virtue of the AEA, merely because operation of a facility will conform to the Commission's basic health and safety standards.' *Id.* It is this automatic exclusion which the NRC seeks here and which we refuse to adopt.

*Id.*, 869 F.2d at 730. Thus, the Court reversed an NRC decision refusing to consider the environmental impacts of severe accidents where the applicant was found to comply with Atomic Energy Act safety regulations.

Moreover, even assuming for purposes of argument that 10 C.F.R. § 50.13 is applicable in a NEPA context, its scope is narrower than the scope of malevolent and insane acts that are of concern in CCAM/CAM's contention. As the Commission subsequently explained, the purpose of 10 C.F.R. § 50.13 was to excuse nuclear power plant license applicants from having to "provide protective measures that are the assigned responsibility of the nation's defense establishment." *See* Final Rule, Protection Against Malevolent Use of Vehicles at Nuclear Power Plants, 59 Fed. Reg. 38,889 (August 1, 1994), citing 32 Fed. Reg. 13,445 (September 26, 1967). The specific issue that led to the promulgation of 10 C.F.R. § 50.13 was the possibility of an attack on a reactor by a missile launched from Cuba. The Commission reasoned that protection against missiles

or similar weapons wielded by a foreign state was the proper responsibility of the U.S. military, not licensees. *Id.*

In contrast, CCAM/CAM's contention raises the potential for the initiation of a fire in the Millstone 3 pool by a variety of causative events, including a range of potential acts of malice or insanity. Specific acts of malice or insanity discussed by CCAM/CAM include the impact of a commercial aircraft on the Millstone site, intentional cask drop, or intentional siphoning of fuel pools. *See* Thompson Declaration, pars. IV-1 through IV-14. Acts of this kind could be implemented by a small number of persons, could be planned and organized entirely in the United States, and need not involve any assistance by a foreign government. Nor would they effectively be deterred by a military response. Thus, the contention contemplates a range of threats that is not encompassed by 10 C.F.R. § 50.13.

The Commission recognized this distinction in 1994, when it revised the design basis for radiological sabotage to include use of a land vehicle by adversaries for transporting personnel, hand-carried equipment, and/or explosives. The rule was promulgated in response to two events that caused the Commission to question the adequacy of the design basis for nuclear power plants: an intrusion by an automobile into the protected area of the Three Mile Island nuclear power plant, and the truck bombing of the World Trade Center in 1993. *See* Proposed Rule, Protection Against Malevolent Use of Vehicles at Nuclear Power Plants, 58 Fed. Reg. 58,804 (November 4, 1993). As the Commission explained in the Final Rule, the scope of the new rule differed significantly from the scope of § 50.13:

The statement of consideration for 10 CFR 50.13 makes it clear that the scope of that regulation is to relieve applicants of the need to provide protective measures that are the assigned responsibility of the nation's defense establishment. The Atomic Energy Commission recognized that it was not practical for the licensees of civilian nuclear power reactors to provide design features that could protect against the full range of the modern arsenal of weapons. The statement concluded with the observation that assessing whether another nation would use force against a nuclear power plant was speculative in the extreme and, in any case, would involve the use of sensitive information regarding both the capabilities of the United States' defense establishment and diplomatic relations.

The new rule, with its addition to the design basis threat and added performance requirements, is in response to a clearly demonstrated domestic capability for acts of extreme violence directed at civilian structures. The participation or sponsorship of a foreign state in the use of an explosives-laden vehicle is not necessary. The vehicle, explosives, and know-how are all readily available in a purely domestic context. It is simply not the case that a vehicle bomb attack on a nuclear power plant would almost certainly represent an attack by an enemy of the United States, within the meaning of that phrase in 10 CFR 50.13.

59 Fed. Reg. at 38,893. Thus, the Commission concluded that 10 C.F.R. § 50.13 is "irrelevant" to protection from a vehicle bomb attack.

CCAM/CAM submit that 10 C.F.R. § 50.13 is similarly irrelevant here. The principal threat is not from a foreign government, but from groups and individuals. They have ready access to a number of methods for doing significant damage to a nuclear plant, without the need for any foreign government support or the use of military weapons such as missiles or bomber aircraft. Moreover, the damage is as likely to be done from inside the United States as from without it. *See* Thompson Declaration, Section V.

**C. The ASLB Erred in Concluding that the Policy of 10 C.F.R. § 50.13 Precludes Consideration of CCAM/CAM's Contention.**

In addition to applying 10 C.F.R. § 50.13 as a matter of law, the ASLB also found in LBP-02-05 that it was bound by previous NRC decisions applying the "policy" of 10 C.F.R. § 50.13 to environmental contentions such as CCAM/CAM's. *Id.*, slip op. at 2,

citing *Philadelphia Electric Co.* (Limerick Generating Station, Units 1 and 2), ALAB-819, 22 NRC 681, 697-701 (1985) (“ALAB-819”), *review declined*, CLI-86-5, 23 NRC 125 (1986), *aff’d sub nom. Limerick Ecology Action Inc. v. NRC*, 869 F.2d 719, 744 (3d Cir. 1989). CCAM/CAM submits that the ASLB’s conclusion is incorrect in several respects.

**1. ALAB-819 does not support LBP-02-05.**

First, the Appeal Board did not even mention 10 C.F.R. § 50.13 in ALAB-819, let alone apply the underlying policy. In that case, the Appeal Board rejected a contention seeking an EIS on the effects of sabotage, based on its conclusion that the risk of sabotage is not subject to quantification. *Id.*, 22 NRC at 698. In reviewing the decision, the Court of Appeals also concluded that (a) CEQ regulations did not bind the NRC to consider worst case accidents; (b) the NRC’s refusal to consider the impacts of sabotage was not based solely on policy statements, but on scientific judgment that current risk assessment techniques “could not provide a meaningful basis upon which to measure such risks,” and (c) that LEA had “failed to undermine or rebut the NRC’s conclusion.” *See Limerick Ecology Action v. NRC*, 869 F.2d at 742. None of these grounds relates to the question of whether the exclusion in 10 C.F.R. § 50.13 is also applicable under NEPA.<sup>12</sup>

Moreover, whatever the facts were that supported the NRC policy in the past, the agency itself has conceded that the “domestic threat environment” has changed

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<sup>12</sup> Moreover, none of the grounds relied on by the Appeal Board and the Court of Appeals in *Limerick Ecology Action* is applicable to this case. CCAM/CAM has not asserted any requirement to consider worst case accidents, but rather that pool fires resulting from acts of malice or insanity are foreseeable. Moreover, CCAM/CAM does not contend that the risk of a sabotage event is quantifiable, but rather that it can and must be assessed qualitatively.

considerably. *See* 59 Fed. Reg. at 38,891. Thus, by its own admission, the NRC no longer has any factual basis for its policy of refusing to address the impacts of acts of malice or insanity in its environmental impact statements.

## **2. ALAB-156 does not support LBP-02-05.**

The NRC did address the applicability of 10 C.F.R. § 50.13 to NEPA questions in *Long Island Lighting Co.* (Shoreham Nuclear Power Station), ALAB-156, 6 AEC 831, 851 (1973). Significantly, the Appeal Board did not conclude in ALAB-156 that 10 C.F.R. § 50.13 governs NEPA considerations as a matter of law. Indeed, such a holding would have placed the Appeal Board in conflict with the Court of Appeals' subsequent holding in *Limerick Ecology Action v. NRC* that "simply meeting the requirements of the [Atomic Energy Act] does not exempt the Commission from complying with NEPA's procedural requirements." *See* 869 F.2d at 741. Instead, the Appeal Board examined the applicability of the rule's rationale under NEPA's "rule of reason." *Id.* As listed by the Appeal Board, the rule's underlying considerations regarding the feasibility and reasonableness of protection against "wartime sabotage," included:

(1) the impracticability, particularly in the case of civilian industry, of anticipating accurately the nature of enemy attack and of designing defenses against it, (2) the settled tradition of looking to the military to deal with this problem and the consequent sharing of its burdens by all citizens, and (3) the unavailability, through security classification and otherwise, of relevant information and the undesirability of ventilating what is available in public proceedings.



*Id.*, citing *Siegel v. AEC*, 400 F.2d 778 (1968). The Appeal Board concluded that this rationale was “as applicable to the Commission’s NEPA responsibilities as it is to its health and safety responsibilities.”<sup>13</sup>

Twenty nine years after the *Shoreham* case was decided, however, in a decade that has seen the destruction of a federal building in Oklahoma by a truck bomb, the near destruction of a U.S. destroyer by a boat bomb, and the destruction of the World Trade Center by a commercial airliner bomb, these considerations do not continue to hold up under the NEPA rule of reason. First, it cannot be considered impracticable to reasonably anticipate the nature of a serious attack on a nuclear power plant. Enough is known about the methods typically used by terrorists, and the vulnerabilities in the designs of nuclear facilities, to evaluate measures that could increase the effectiveness of protection against such an attack. Indeed, as discussed in Dr. Thompson’s Declaration at paragraph V-2, the reactor vendor ASEA-Atom has developed a design for a reactor that is specifically intended to resist takeover of the plant by knowledgeable explosive-equipped saboteurs or aerial bombardment with 1,000-pound bombs. The design envelope of this reactor would safely accommodate a range of potential acts of malice or insanity.

Second, it is quite clear in the aftermath of September 11 and other terrorist attacks in recent years that the military is generally ineffective in preventing such attacks, because the military does not stand in constant readiness to counter serious domestic threats. For example, the element of surprise gained by suicide bombers is a factor that

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<sup>13</sup> With respect to “industrial sabotage,” the Appeal Board concluded that the issue need not be considered because the environmental impacts would be no worse than those of a design basis accident. As demonstrated in Dr. Thompson’s Declaration, that is not the

makes ordinary military protection relatively ineffective. Thus, the "settled tradition" of relying on the military has no practical applicability in this context. Moreover, while the burden of supporting the military may be shared by all citizens, the costs and benefits of decisions regarding the protection of individual nuclear facilities are not so evenly distributed. If a nuclear facility licensee is allowed to forego measures that would protect against terrorist attacks, it gains an economic benefit; meanwhile, if an attack occurs that leads to a radiological release, members of the public in the immediate region will bear the greatest burden in terms of health effects and economic cleanup costs. One of CCAM/CAM's principal concerns in this litigation is that a safer technology for storing spent fuel, dry storage, is being avoided because of its relatively high cost to the licensee. Yet, the cost to society of a spent fuel pool fire could be astronomical. An EIS would provide a vehicle for publicly assessing the cost-effectiveness to society of using dry storage in lieu of high-density wet storage for the additional fuel to be stored at Millstone.

Third, it simply is not the case that relevant information is unavailable. As discussed in paragraph IV-8 and Section X of the Thompson Declaration, sufficient information is available about the means by which a nuclear power plant could be attacked, its vulnerability to attack, and the potential consequences of such an attack, that would permit this issue to be litigated. Although it is correct that some information should not be ventilated in public proceedings, CCAM/CAM has proposed a reasonable method for addressing this problem. *See* Thompson Declaration, Section IX.

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case with respect to the effects of successful acts of malice or insanity on spent fuel pools, whose impacts may be catastrophic.

Accordingly, the rationale underlying 10 C.F.R. § 50.13 cannot rationally be applied to exclude consideration of CCAM/CAM's environmental contention in this proceeding.

**D. New Information and Changed Circumstances Demonstrate That Severe Fuel Pool Accidents Caused by Acts of Malevolence or Insanity Are Reasonably Foreseeable, and Therefore Must be Addressed in an EIS Before the NRC May Permit Fuel Pool Expansion at Millstone.**

**1. New information and changed circumstances**

CCAM/CAM submit that significant new information and changed circumstances have developed over the past year and a half, which conclusively demonstrate that the Commission no longer has any rational basis for refusing to consider the environmental impacts to the Millstone 3 spent fuel pools of acts of malice or insanity. These facts are not in dispute: in fact, they consist of well-known events and statements by the President of the United States, the NRC and other federal government agencies, of which the Commission may take judicial notice.

**a. New information regarding threat of acts of malice or insanity.**

While the NRC has previously declared that it is unable to make a meaningful assessment of the risks of sabotage, this declaration was made many years ago under very different circumstances. The events of September 11 dramatically and conclusively disproved that conclusion. As of September 11, it is now clear that terrorists are both capable of and intent upon causing major damage to life and property in the United States. Because of the widespread damage that could be done by a radiological release, nuclear power plants are an obvious target for a terrorist attack.

Moreover, a variety of statements and actions taken by the federal government demonstrate, beyond dispute, that the government now considers the threat of additional terrorist attacks to be foreseeable, even inevitable. Indeed, planning for additional terrorist attacks has become the major preoccupation of virtually every federal agency that has any role in protecting public safety. This is reflected in NRC and other press releases, and in news reports of statements made by NRC and other government officials. In summary, as a result of the September 11, the NRC put nuclear power plants on a state of high alert, and began a total review of its security regulations.<sup>14</sup> The Coast Guard and the National Guards of various states also increased their patrols of nuclear power plants, and the U.S. Department of Energy (“DOE”) halted all shipments of nuclear waste. In addition, the NRC, the FBI, and the Attorney General of the United States have issued periodic warnings regarding the potential for additional acts of terrorism. On January 29, 2002, the President of the of the United States informed the Congress and the American public that detailed information relative to U.S. nuclear power stations was found in terrorist enclaves in Afghanistan. The following day the attorney general issued a national alert, which specified threats to nuclear power stations. Most recently, the NRC has issued an order requiring nuclear power plant licensees to take “prudent, interim”

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<sup>14</sup> On October 18, 2001, for example, the NRC issued a press release stating that in addition to maintaining “the highest level of security,” the NRC has “advised all of its licensees of additional actions considered prudent and appropriate to strengthen security further” and is “closely monitoring those actions.” NRC Press Release, “Threat to Three Mile Island Nuclear Plant Deemed Non-Credible; NRC Monitoring Continues and Website Restored,” attached as Exhibit 6 to CCAM/CAM’s Motion to Reopen. In addition, the NRC has sent letters to governors of states with NRC-regulated facilities to advise them to “establish clear liaison between nuclear facilities and state officials” for emergencies. *Id.*

measures to strengthen licensees' capabilities to respond to the "generalized high-level threat environment." EA-02-026, Order Modifying Licenses (February 25, 2002).

A variety of malicious or insane acts during recent years, which were previously discounted by the NRC as unworthy of consideration in its environmental reviews, must now be re-examined in light of the September 11 attack. These events include: the 1983 bombing of the Marine barracks in Beirut; the 1993 bombing of the World Trade Center; the February 1993 intrusion into the Three Mile Island site, in which the intruder crashed his station wagon through the security gate and rammed it under a partly opened door in the turbine building; the 1995 bombing of a federal building in Oklahoma City; the plot to bomb the United Nations Building, FBI offices in New York City, the Lincoln Tunnel, the Holland Tunnel, and the George Washington Bridge; the 1998 bombing of the U.S. embassies in Tanzania and Kenya; and the 2000 bombing of the USS Cole. *See* Thompson Declaration, Section V. These events and others highlight a number of significant factors that permit a qualitative analysis of the foreseeability of acts of malice and insanity: the vulnerability of U.S. facilities and institutions, the sophistication of the attackers, and the persistence of efforts to damage major U.S. government facilities and other institutions.

**b. New information regarding potential for pool accident.**

The NRC has never performed an EIS that addresses the potential for, and impacts of, the onset of exothermic oxidation reactions in a spent fuel pool. Yet, the NRC Staff has recently conceded that: (a) loss of water from a high-density spent fuel pool can lead to the onset of exothermic oxidation reactions for spent fuel of any age after discharge from a reactor; (b) the onset of exothermic oxidation reactions can be assumed

if the water level in a pool declines to the level of the top of the spent fuel racks; (c) the onset of exothermic oxidation reactions in one pool is likely to lead to the onset of similar reactions in nearby pools; and (d) the onset of exothermic oxidation reactions will cause a release to the atmosphere of a substantial fraction of the radioactive isotopes in the spent fuel. See Thompson Declaration, pars. II-10; IV-3 through IV-6; NUREG-1738, Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants (NRC: October 2000).<sup>15</sup>

The NRC Staff discussed the implications of NUREG-1738 with respect to protection against sabotage events in SECY-01-0100, re: Policy Issues Related to Safeguards, Insurance, and Emergency Preparedness Regulations at Decommissioning Nuclear Power Plants Storing Fuel in Spent Fuel Pools (WITS 200000126) (June 4, 2001). Among the conclusions reached in SECY-01-100 were the following:

NUREG-1738 also presented thermal hydraulic analyses of the stored spent fuel when SFP cooling is lost or the spent fuel is uncovered. The staff found that a generic decay heat level (and, therefore, decay time) beyond which a zirconium fire is physically impossible cannot be defined. This is because the geometry of the spent fuel assemblies, the associated air cooling flow paths, and the resultant heat transfer rates are not predictable following a major dynamic event (such as a very severe earthquake), which could rupture and rapidly drain the SFP. *As a result, the study concluded that the possibility of a zirconium fire cannot be dismissed even many years after final reactor shutdown.*

*Id.* at 2 (emphasis added). This represents a 180 degree turnaround from the Staff's previous position. The report continues that the Staff's previous position:

was based on demonstrating by thermal-hydraulic analysis that spent fuel stored in the SFP would air cool sufficiently and not reach the zirconium fire ignition temperature. The position did not consider blockage or obstructions to natural circulation air flow through the fuel assemblies since such sequences were considered strictly hypothetical. *In NUREG-1738 the staff observed that it is not*

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<sup>15</sup> While the report was not issued until January 2001, it was dated October 2000.

*feasible, without numerous constraints, to define a generic decay heat level beyond which a zirconium fire is not physically possible. Stated in this manner, the zirconium fire cannot be considered strictly hypothetical.*

*Id.* at 3 (emphasis added). In an attachment, entitled Decommissioning Policy Issues and Options, the Staff reached the following additional conclusion that effectively concedes the credibility of a sabotage event initiating a spent fuel pool fire:

Until recently, the staff believed that the DBT [design basis threat] of radiological sabotage could not cause a zirconium fire. However, NUREG-1738 does not support the assertion of a lesser hazard to the public health and safety, given the possible consequences of sabotage-included uncovering of the fuel in the SFP when a zirconium-fire potential exists.<sup>16</sup>

*Id.*, attachment at 13. The staff went on to say that it is “conducting detailed analyses of the effects of the DBT of radiological sabotage on SFPs,” and that it will “use the results of these analyses to determine, on a plant-specific basis, whether radiological sabotage can result in the conditions which could lead to zirconium fires at a decommissioning plant. *Id.* Thus, by generally conceding the vulnerability of spent fuel pools to sabotage-included fires, and embarking on its own investigation, the Staff has effectively conceded that acts or malice against a spent fuel are credible and worthy of consideration in the NRC’s NEPA decisionmaking process.<sup>17</sup>

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<sup>16</sup> It should be noted that a “zirconium-induced fire potential” exists in virtually any high-density spent fuel pool that is filled, or even partially filled, as is the case at Millstone 3.

<sup>17</sup> Notably, in a recent speech, the Chairman of the Commission conceded that while the NRC has confidence in the reinforced concrete pools themselves, “[w]hat one worries about is an event where there is a drain down of the fuel.” U.S. NRC, Press Conference of Chairman Meserve, National Press Club Luncheon (January 17, 2002), <http://www.nrc.gov/reading-rm/doc-collections/commission/tr/2002/20020117.html>.

**2. Foreseeable impacts must be addressed, even if their likelihood cannot be quantified.**

In ALAB-819 and other decisions, the NRC has previously taken the position that the environmental risks of sabotage need not be considered under NEPA because they are not capable of being quantified. Yet, even though the scientific forecasting of highly-destructive naturally-occurring events, such as earthquakes, is often tenuous, the fact that they were known to occur, even in the remote past, has compelled the NRC to address such risks in its safety regulations and NEPA documents. Highly-destructive acts of terrorism have occurred with increased frequency in the past decade in the United States, and this frequency could increase. NRC's position is not only inconsistent with NRC and CEQ regulations and with other NRC rulemaking pronouncements, but it also defies common sense.

**a. NRC policy is inconsistent with 10 C.F.R. § 51.71(d) and 40 C.F.R. § 1502.22.**

In its various decisions expressing its policy, the NRC has never explained how it can hold its position and still be in compliance with 10 C.F.R. § 51.71(d). This provision specifically requires that where it is impossible to address environmental "factors" in an EIS in quantitative terms, they must be addressed in qualitative terms.<sup>18</sup> The regulation carries with it the premise that, even if the likelihood of an impact is not quantifiable, the impact can be foreseeable.

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<sup>18</sup> *Limerick Ecology Action v. NRC* is not dispositive on the issue because there is no indication that the intervenor raised the applicability of 10 C.F.R. § 51.71(d), either before the Appeal Board or the Court. Thus, the Court never addressed the fundamentally important question of whether the NRC was required by its own regulations to address, in qualitative terms, the likelihood of sabotage and other acts of malice and insanity against the Limerick nuclear power plant.



Similarly, the NRC has failed to comply with 40 C.F.R. § 1502.22(b)(1), which requires it to provide a qualitative analysis of reasonably foreseeable impacts, even when quantifiable information about their probability is unavailable. Where information about impacts is unavailable, the agency must make a statement of the relevance of the information to the evaluation of impacts in the EIS, summarize existing relevant and credible scientific evidence, and provide the agency's evaluation of the impacts based on generally accepted theoretical approaches or research methods. As discussed below, the NRC has demonstrated that it is perfectly capable of this exercise, but has declined to do so when required by NEPA.

**b. NRC policy is inconsistent with rationale for vehicle-bomb rule**

The rationale for the 1994 vehicle-bomb rule demonstrates that the NRC has the capacity and information necessary to perform a qualitative analysis of the potential for acts of malice and insanity. There, the NRC performed a "conditional probabilistic risk analysis" to assess the vulnerability of a nuclear power plant to a vehicle bomb. *See* 59 Fed. Reg. at 38,891. In using the findings of this analysis to develop the vehicle-bomb rule, the NRC took a qualitative approach to assessing the probability of a vehicle-bomb event.

In the preamble to the rule, the Commission explicitly recognized that even if the likelihood of terrorist or insane acts cannot be quantified, they may not be ignored:

Over the past several years, a number of National Intelligence Estimates have been produced addressing the likelihood of nuclear terrorism. The analyses and conclusions are not presented in terms of quantified probability but recognize the unpredictable nature of terrorist activity in terms of likelihood. The NRC continues to believe that, although in many cases considerations of probabilities can provide insight into the relative risk of an event, in some cases it is not

possible, with current knowledge and methods, to usefully quantify the probability of a specific vulnerability threat.

The NRC notes that, although not quantified, its regulatory analysis recognizes the importance of the perception of the likelihood of an attempt to create radiological sabotage in assessing whether to redefine adequate protection. The NRC's assessment that there is no indication of an actual vehicle threat against the domestic commercial nuclear industry was an important consideration in concluding that neither the Three Mile Island intrusion nor the World Trade Center bombing demonstrated a need to redefine adequate protection.

The NRC does not agree that quantifying the probability of an actual attack is necessary to a judgment of a substantial increase in overall protection of the public health and safety (a less stringent test of the justification of for a rule change). *Inherent in the NRC's current regulations is a policy decision that the threat, although not quantified, is likely in a range that warrants protection against a violent external assault as a matter of prudence.*

59 Fed. Reg. at 38,890-9. (emphasis added). The NRC further elaborated on what it meant by its use of the term "likely," by identifying several factors that make up the "domestic threat environment," and noting the degree to which it had changed in recent years:

The vehicle bomb attack on the World Trade Center represented a significant change to the domestic threat environment that ... eroded [our prior] basis for concluding that vehicle bombs could be excluded from any consideration of the domestic threat environment. For the first time in the United States, a conspiracy with ties to Middle East extremists clearly demonstrated the capability and motivation to organize, plan and successfully conduct a major vehicle bomb attack. Regardless of the motivations or connections of the conspirators, it is significant that the bombing was organized within the United States and implemented with materials obtained on the open market in the United States. Accordingly, the Commission believes that the threat characterized in the final rule is appropriate.

*Id.*, 59 Fed. Reg. at 38891. These same considerations continue to apply in the post-September 11 environment, and indeed are all the more persuasive of a sea change in the

“domestic threat environment.” Thus, motive, capacity, and the pattern of past incidents are relevant to a qualitative analysis.<sup>19</sup>

In assessing the risk of a truck bomb attack, the NRC also took into account the potentially devastating consequences of ignoring the threat of attack:

Failure to protect against attempted radiological sabotage could result in reactor core damage and large radiological releases. Based on its assessment, the NRC concludes that amending its regulations to protect against malevolent use of a vehicle against a nuclear power plant provides a substantial increase in overall protection of the public health and safety.

*Id.*, 59 Fed. Reg. at 38,898.

Similarly, in this case, the consequences of ignoring the potential for an attack on the Millstone 3 spent fuel pool are potentially catastrophic. Moreover, such catastrophic consequences may be reduced by orders of magnitude by making reasonable changes to the design of the facility. It is nothing short of folly to ignore such a risk, especially when it can be avoided.

In light of known qualitative information regarding the likelihood and potentially devastating consequences of a truck bomb incident, the NRC took a “prudent” approach by upgrading the design basis of nuclear facilities for protection against sabotage. *See* 59 Fed. Reg. at 38,893. Indeed, the NRC stated that its objective in upgrading the rule was

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<sup>19</sup> The NRC’s list of the qualitative factors that should be evaluated in considering the likelihood of acts of malice or insanity is consistent with the factors identified in Dr. Thompson’s Declaration:

[f]rom a qualitative perspective, the probability of a terrorist attack within the US homeland appears to be significantly greater in the current period that it was, for example, in the 1980’s. There is now a focused, well-organized, and well-financed threat. The United States is taking military action that may provoke further attacks. This new threat environment may persist for many years.

to “enhance reactor safety by maintaining a prudent margin between what is the current threat estimate (low) and the design basis threat for radiological sabotage specified in 10 C.F.R. 73.1(a) (higher).” *Id.*

As the Courts held in *Limerick Ecology Action* and *Citizens for Safe Power*, see discussion above at 14, the scope of environmental protection afforded by NEPA is not bounded by the scope of the “no undue risk” standard in the Atomic Energy Act. Thus, the standard for requiring an EIS demands a degree of prudence that must exceed the degree of prudence which is embodied in the NRC’s regulations. The Commission itself has laid the groundwork to change its policy against considering the impacts of acts of malice or insanity in its EIS’s. It would be internally inconsistent and irrational for the Commission to continue to refuse to apply this same approach in the context of a NEPA analysis.

**c. NRC policy is irrational.**

Moreover, the NRC’s policy is patently irrational. It amounts to a decision that if a number cannot be affixed to the likelihood of destructive acts of terrorism or insanity, such acts do not exist. The mere fact that the timing or number of such attacks are not quantitatively predictable does not make the occurrence of such attacks unforeseeable. Various factors such as the existence of motivating factors, opportunity to obtain weapons and access, and frequency of such attacks may be evaluated to qualitatively evaluate the likelihood of these attacks.

The NRC’s refusal to examine the consequences of acts of malice or insanity in its EIS’s has become increasingly untenable as the number and effectiveness of terrorist

attacks has grown over the past ten years. *See* Thompson Declaration, Section V. In the wake of the September 11, when the NRC, the Attorney General and the FBI periodically warn the public of the potential for additional terrorist attacks, and the NRC has undertaken a “top-to-bottom” study of the adequacy of its security regulations to protect against such acts, the policy of declaring them unforeseeable has become, quite simply, absurd.<sup>20</sup>

**D. EIS Must Fully Address Impacts, Weigh Alternatives and Mitigation Options**

An EIS for the Millstone 3 spent fuel pool expansion would be required to fully consider the impacts of acts of malice or insanity against the Millstone 3 fuel pools, and consider reasonable alternatives and mitigative measures. *See* 10 C.F.R. § 51.71. This discussion would be extremely valuable to decisionmakers and the public, because (a) the NRC has never before analyzed the environmental impacts of acts of malice or insanity against a nuclear facility, or the impacts of a fuel pool fire; and (b) because it would provide an analysis of reasonable alternatives that could be employed to minimize or avoid the risks.

An EIS for the Millstone 3 spent fuel pool expansion would show that the impacts of a spent fuel pool accident at Millstone 3 could be extremely severe, even apocalyptic in

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<sup>20</sup> In fact, the NRC Staff has previously conceded that “the threat of a terrorist attack on a U.S. facility is neither idle nor speculative.” NRC Staff Response at 13. Yet, it argues that “the risk to a particular facility is . . . speculative.” *Id.* DNC also repeats the incantation that a terrorist attack against Millstone 3 is “speculative.” DNC Response at 13, 16, 17.

The assertion that a terrorist attack against any nuclear facility but Millstone is foreseeable is patently illogical. If, as the Staff concedes, any nuclear facility is a reasonably foreseeable target of a terrorist attack, and Millstone is one such facility, then Millstone is a reasonably foreseeable target of a terrorist attack.

nature. *See* Thompson Declaration, Section VII. The comparative risks of storing spent fuel in high-density pools, as compared with alternative options for storing fuel, should be analysed through an extension of techniques that are currently available in the field of probabilistic risk assessment ("PRA").<sup>21</sup> Such an analysis would consider the potential for a release of radioactive material from a storage facility to the environment through exothermic oxidation reactions and other mechanisms. A credible assessment of the release potential would consider all physically realisable combinations of causative events and modes of release. *See* Thompson Declaration, Section X. This assessment, combined with an estimation of offsite consequences, could provide a credible analysis of the comparative risks of storing spent fuel in high-density pools and in other types of facility. *Id*

The offsite consequences arising from the onset of exothermic oxidation reactions in a pool could be estimated through analytic techniques that have been developed in the context of PRA. This estimation of consequences, combined with the assessment of modes of water loss, could provide a credible description of the potential for, and impacts of, the onset of exothermic oxidation reactions in a high-density spent fuel pool. That description would be an essential component of a credible environmental impact statement (EIS) for a high-density spent fuel pool.

An EIS would also force the NRC Staff to consider reasonable alternatives and/or mitigative measures for avoiding or reducing the risks posed by spent fuel storage in the

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<sup>21</sup> As discussed above, the NRC has some experience in extending PRA techniques to address acts of malice or insanity. It has performed a "conditional probabilistic risk analysis" to assess the vulnerability of a nuclear power plant to a vehicle

Millstone 3 pool. Alternatives are available that would greatly reduce, or even eliminate, the risk of a pool fire. But they have been overlooked because of their larger marginal cost. An EIS would require the NRC Staff and DNC to make a more realistic cost analysis, that took into account the very high potential costs of an accident and weighed them against the cost of alternatives that would greatly mitigate or reduce those consequences. For example, the fuel could be stored dry, in robust metal casks that are cooled by natural circulation of air; each cask could be surrounded by an earth-and-gravel berm, with substantial spacing between the casks. This storage arrangement would withstand a wide variety of determined acts of malice. The design basis for this illustrative storage arrangement could include a requirement, among other requirements, that the impact of a large, fuel-laden aircraft on the storage facility would not lead to a release of radioactive material from more than one cask. More robust storage options are also available, and should be evaluated in an EIS. A fuel storage facility constructed to be robust against aircraft impact with such a design basis would not only be able to withstand or limit the consequences of a wide variety of acts of malice, but would also exhibit a very low probability of experiencing a substantial release of radioactive material due to events other than acts of malice. *See Thompson Declaration, Section VIII.*

CCAM/CAM recognizes that in a hearing, a balance may need to be struck between NEPA's goal of open and informed decisionmaking, and the need to safeguard sensitive information. Also, potential acts of malice or insanity that affect spent fuel pools can be considered to pose a threat to the security of the United States. In

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bomb. This analysis assumed a bomb detonation at various locations, and examined the outcome in terms of reactor core damage. *See 59 Fed. Reg. at 38,891.*

thoroughly examining this threat, an EIS will necessarily consider sensitive information, some of which will not be appropriate for public disclosure. There is ample precedent for considering national security issues and sensitive information in EIS's. The U.S.

Department of Energy has performed a number of EIS's of this type. In Section IX of his Declaration, Dr. Thompson suggests concepts and procedures that may be used to address sensitive information.

## VII. CONCLUSION

NEPA is the charter for the protection of the environment. As a federal agency, the NRC must comply with it to the "fullest extent possible," by rigorously examining the environmental impacts of its proposed actions. *Calvert Cliffs Coordinating Commission v. Atomic Energy Commission*, 449 F.2d 1109, 1114 (D.C.Cir. 1971). This obligation is ongoing, and is renewed with each licensing action that the Commission faces.

The Commission now has before it a number of requests for licensing action, including the proposed expansion of spent fuel pool capacity at Millstone 3. It must review the environmental impacts of each of these licensing actions in light of the stern new reality of the post-September 11 world. The NEPA rule of reason leaves the Commission no further room to deny the painfully obvious fact that acts of malice and insanity pose a lethal threat to U.S. nuclear facilities, with potentially catastrophic effects on the environment. Under the rule of reason, the Commission has no choice but to face reality and abandon its former policy of refusing to consider the impacts of acts of malice or insanity in EIS's. The Commission should admit CCAM/CAM's environmental contention and remand it to the ASLB for a hearing.



Respectfully submitted,



Diane Curran

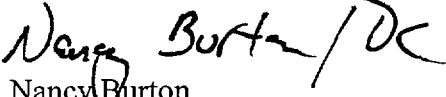
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February 27, 2002

## **CERTIFICATE OF SERVICE**

I hereby certify that on February 27, 2002, copies of "CONNECTICUT COALITION AGAINST MILLSTONE AND LONG ISLAND COALITION AGAINST MILLSTONE BRIEF IN RESPONSE TO CLI-02-05 REGARDING NEPA REQUIREMENT TO ADMIT CONTENTION REGARDING ENVIRONMENTAL IMPACTS OF ACTS OF MALICE OR INSANITY" were served by E-Mail and first class mail on the individuals listed below:

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