April 17, 2003

Ms. Edith Gbur
Chairperson
Jersey Shore Nuclear Watch
P.O. Box 4283
Brick, NJ 08723

SUBJECT: ISSUANCE OF DIRECTOR'S DECISION UNDER 10 CFR 2.206

Dear Ms. Gbur:

This letter responds to the Petition you and other members of the public filed pursuant to Title 10 of the *Code of Federal Regulations*, Section 2.206 on June 21, 2002. In your Petition, you requested that the U.S. Nuclear Regulatory Commission (NRC):

1. Suspend Certificate of Compliance (CoC) No. 1004 for the NUHOMS dry spent fuel storage system.

2. Halt transfer of spent fuel from wet pool storage to dry storage modules at the Oyster Creek Generating Station (Oyster Creek).

3. Conduct a site-specific public hearing before independent judges on the dry cask licensing proceeding for Oyster Creek and other nuclear issues identified in the petition.

4. Make a determination of the NUHOMS' capability to withstand terrorist attacks similar to those on September 11, 2001.

5. Develop criteria and regulations to empirically verify dry storage system capability and to apply those requirements to Oyster Creek.

6. Halt loading until a thorough inspection of the total system has been completed to verify that the NUHOMS modules were fabricated properly and will last the design life.

As the basis for the request, safety concerns were presented in the following areas:

1. Location of the Oyster Creek independent spent fuel storage installation (ISFSI) relative to local roads and communities;

2. Ability of the NUHOMS dry spent fuel storage system to survive a sabotage attack;

3. Adequacy of Oyster Creek security measures for fuel-handling activities;

4. Adequacy of the Oyster Creek emergency evacuation plan; and

5. Quality of the NUHOMS systems planned for use at Oyster Creek.

You and other supporters of the petition participated in a teleconference with NRC's Office of Nuclear Material Safety and Safeguards Petition Review Board (PRB) on July 18, 2002, to clarify the bases for the petition. In addition, you forwarded to NRC a series of form letters signed by various members of the public in August 2002, to demonstrate additional support for the petition. On November 8, 2002, NRC received additional form letters forwarded by you. The transcript and the form letters were treated as supplements to the petition and are available in the Agencywide Documents Access and Management System (ADAMS), which provides text and image files of NRC's public documents.

These documents may be accessed through NRC's Public Electronic Reading Room on the Internet at http://www.nrc.gov/reading-rm/adams.html. The docket number, 07200015, for the Oyster Creek ISFSI can be used for searching ADAMS for these documents. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC Public Document Room Reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr@nrc.gov.

In a letter dated August 12, 2002, the NRC staff informed you and the other petition supporters that the request to immediately suspend CoC No. 1004 for the NUHOMS dry spent fuel storage system and to halt transfer of spent fuel from wet pool storage to dry storage modules at Oyster Creek was denied because the safety concerns with the NUHOMS system had been initially reviewed by the NRC staff and determined not to pose an undue risk to public health and safety.

On October 30, 2002, the NRC staff held a teleconference with you and Mr. Peter James Atherton to discuss the status of the staff's review of your petition. You and Mr. Atherton requested that NRC address a combination of two of the concerns in the petition as a separate safety concern. That concern is also addressed in the Director's Decision.

The staff sent a copy of the proposed Director's Decision to you and to AmerGen Energy Company, LLC. (AmerGen), for comment on December 10, 2002. When we heard that you had not received your copy of the proposed Director's Decision, we sent you another copy on January 7, 2003. You responded with comments by e-mails dated February 6, March 5, 10 and 19, 2003. The comments and the staff responses to them are available electronically through NRC's Public Electronic Reading Room at http://www.nrc.gov/reading-rm/adams.html under docket number 07200015.

In the petition, you requested NRC to:

1. Suspend CoC No. 1004 for the NUHOMS dry spent fuel storage system, halt transfer of spent fuel from wet pool storage to dry storage modules at Oyster Creek, and halt loading of all NUHOMS systems until a thorough inspection has been completed to verify compliance with fabrication requirements.

   In our letter dated August 12, 2002, we notified you that we found no safety basis for NRC immediately suspending CoC No. 1004 and prohibiting transfer of spent fuel from wet pool

storage to dry storage modules at Oyster Creek, but would continue to consider the request as our safety review proceeded. Based on the staff's safety review, as detailed in the enclosed Director's Decision, we find no basis for suspending CoC No. 1004 nor disallowing transfer of spent fuel from wet storage to dry storage at Oyster Creek.

2. Conduct a site-specific public hearing before independent judges on the dry cask licensing proceeding for Oyster Creek and other nuclear issues identified in the petition.

   Based on the staff's review, as detailed in the enclosed Director's Decision, we find no basis to conduct a hearing on the Oyster Creek ISFSI activities nor for the other concerns identified in the petition.

3. Make a determination of the NUHOMS' capability to withstand terrorist attacks similar to those on September 11, 2001.

   The NRC, other Federal, State, and local agencies, and the nuclear industry have implemented a significant number of measures to prevent and mitigate terrorist attacks similar to those on September 11, 2001. These measures are summarized in the enclosed Director's Decision. In addition, although dry spent fuel storage systems are not specifically assessed as to their ability to withstand the impact of a commercial aircraft, the design of the storage systems must have the capability to provide for the protection of public health and safety against naturally occurring events. This includes flying debris from tornadoes or hurricanes, and seismic events. To provide this level of protection, the design must be robust. This robustness prevents the dispersion of radioactive materials under analyzed accident conditions. The inherent robustness of the design will limit the release of radioactive materials under a terrorist attack, and continue to protect public health and safety.

4. Develop criteria and regulations to empirically verify dry storage system capability and to apply those requirements to the Oyster Creek storage design prior to approval.

   The NRC technical review includes evaluating storage design characteristics such as structural, thermal, radiation shielding, radioactive material confinement, nuclear criticality, material interactions, and overall performance. As discussed in the enclosed Director's Decision, the NUHOMS design has been analyzed using industry standards for material characteristics based on empirical data for design life performance. Dry storage systems are evaluated using conservative analysis and assumptions to store the spent fuel safely for a design life of 20 years, at a minimum.

A copy of the Director's Decision (DD-03-01) will be filed with the Secretary of the Commission for the Commission to review in accordance with 10 CFR 2.206(c). As provided for by this regulation, the decision will constitute the final action of the Commission 25 days after the date of the decision unless the Commission, on its own motion, institutes a review of the decision within that time.

The documents cited in the enclosed decision are available for inspection at the Commission's Public Document Room, located at One White Flint North, 11555 Rockville Pike (first floor),

Rockville, Maryland, and from the ADAMS Public Library component on the NRC's Web site, http://www.nrc.gov (the Public Electronic Reading Room).

A copy of the "Issuance of the Director's Decision Under 10 CFR 2.206" that has been filed with the Office of the *Federal Register* for publication is also enclosed.

We would like to thank you for bringing these issues to the attention of NRC. Please feel free to contact Stephen O'Connor of my staff at (301) 415-8561, to discuss any questions related to this Petition.

Sincerely,

/RA/ /s/

Martin J. Virgilio, Director
Office of Nuclear Material Safety
and Safeguards

Docket Nos. 50-219, 72-15

Enclosures: Director's Decision DD-03-01
Federal Register Notice

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DD-03-01

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
Martin J. Virgilio, Director

In the Matter of	)	Docket Nos. 50-219 and 72-15
	)	
	)	
AmerGen Energy Company, LLC	)	License No. DPR-16
	)	
	)	
Oyster Creek Generating Station	)	10 CFR 2.206

DIRECTOR'S DECISION UNDER 10 CFR 2.206

Introduction

By letter dated June 21, 2002, as supplemented by a telephone call with the U.S. Nuclear Regulatory Commission's (NRC's) Petition Review Board (PRB) on July 18, 2002, Ms. Edith Gbur of the Jersey Shore Nuclear Watch and other members of the public filed a petition pursuant to Title 10 of the *Code of Federal Regulations*, Section 2.206. The petitioners requested that the NRC take the following actions:

1. Suspend Certificate of Compliance (CoC) No. 1004 for the NUHOMS dry spent fuel storage system.

2. Halt transfer of spent fuel from wet pool storage to dry storage modules at the Oyster Creek Generating Station (Oyster Creek).

3. Conduct a site-specific public hearing before independent judges on the dry cask licensing proceeding for Oyster Creek and other nuclear issues identified in the petition.

4. Make a determination of the NUHOMS' capability to withstand terrorist attacks similar to those on September 11, 2001.

5. Develop criteria and regulations to empirically verify dry storage system capability and to apply those requirements to Oyster Creek.

6. Halt loading until a thorough inspection of the total system has been completed to verify that the NUHOMS modules were fabricated properly and will last the design life.

As the basis for the request, safety concerns were presented in the following areas:

1. Location of the Oyster Creek independent spent fuel storage installation (ISFSI) relative to local roads and communities;

2. Ability of the NUHOMS dry spent fuel storage system to survive a sabotage attack;

3. Adequacy of Oyster Creek security measures for fuel-handling activities;

4. Adequacy of the Oyster Creek emergency evacuation plan; and

5. Quality of the NUHOMS systems planned for use at Oyster Creek.

The petitioners and other members of the public participated in a teleconference with NRC's Office of Nuclear Material Safety and Safeguards PRB on July 18, 2002, to clarify the bases for the petition. In addition, Ms. Gbur forwarded to NRC a series of form letters signed by various members of the public in August 2002, to demonstrate additional support for the petition. On November 8, 2002, NRC received additional form letters forwarded by Ms. Gbur. The transcript and the form letters were treated as supplements to the petition and are available in the Agencywide Documents Access and Management System (ADAMS), which provides text and image files of NRC's public documents.

These documents may be accessed through NRC's Public Electronic Reading Room on the Internet at http://www.nrc.gov/reading-rm/adams.html. The docket number, 07200015, for the Oyster Creek ISFSI can be used for searching ADAMS for these documents. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC Public Document Room Reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to pdr@nrc.gov.

In a letter dated August 12, 2002, the NRC staff informed the petitioners that their request to immediately suspend CoC No. 1004 for the NUHOMS dry spent fuel storage system and halt transfer of spent fuel from wet pool storage to dry storage modules at Oyster Creek was denied because the safety concerns with the NUHOMS system had been initially reviewed by NRC staff and determined not to pose an undue risk to public health and safety.

On October 30, 2002, NRC staff held a teleconference with Ms. Gbur and Mr. Peter James Atherton to discuss the status of the staff's review of their petition. Ms. Gbur and Mr. Atherton requested that NRC address a combination of two of the concerns in the petition as a separate safety concern. That concern is also addressed below.

The NRC sent a copy of the proposed Director's Decision to the petitioners and to AmerGen Energy Company, Inc. (AmerGen), for comment on December 10, 2002. However, Ms. Gbur did not receive her copy of the proposed Director's Decision, so NRC sent another copy to her on January 7, 2003. Ms. Gbur responded with the petitioner's comments by e-mails dated February 6, March 5, 10 and 19, 2003. The comments and the staff responses to them are available electronically through NRC's Public Electronic Reading Room at http://www.nrc.gov/reading-rm/adams.html under docket number 07200015.

Discussion

As the basis for their requested actions, the petitioners raise a number of specific concerns related to NRC's process for licensing spent fuel storage, and also concerns specifically related to the Oyster Creek ISFSI. These concerns, and the evaluations of these concerns by NRC staff, are as follows.

1. Concern: The location of the Oyster Creek ISFSI relative to local roads and communities is unacceptable. The petition stated:
   (A) The Oyster Creek ISFSI is only 400 feet to a major highway, and in close proximity to the Garden State Parkway and nearby residences and schools.
   (B) There was no environmental impact statement prepared for the ISFSI providing the public with an opportunity for comment.
   (C) The CoC for the NUHOMS system was issued without the residents near the Oyster Creek site being informed that the NUHOMS system was being planned for use at Oyster Creek.

   Evaluation:
   (A) AmerGen is required to monitor radiation at the site boundary to ensure that dose rates are below the regulatory limit. The annual maximum dose limit to an individual located at the site boundary is 25 millirem for normal ISFSI operations. This means that if an individual were to stand at the Oyster Creek site boundary 24 hours a day for a year, that individual could potentially receive up to approximately the same radiation dose as would be received from a chest x-ray. This is the equivalent of approximately a tenth of the total radiation dose that an average person continuously receives from the natural environment over the period of a year.

   In the event of an accident, the ISFSI is designed such that radiation dose at the site boundary would remain below 5 rem. This limit is based on Environmental Protection Agency guidelines and has been determined by NRC to be a safe limit for protecting public health and safety. However, ISFSIs are designed to not release any radioactive materials, or significant amounts of direct radiation, as a result of analyzed accident conditions. Therefore, it is highly unlikely that a person outside the licensee's controlled area (including the highway) would be exposed to a radiation dose even close to 5 rem, or an amount significantly more than the 25 millirem limit associated with normal operations.

   The NRC staff has reviewed the location of the ISFSI during inspection of the site parameter evaluations required in 10 CFR 72.212 (including use of the NUHOMS design at Oyster Creek, Security Plan changes to accommodate the 10 CFR Part 72 activities, and radiation protection to members of the public) and has determined that it meets regulatory requirements and provides adequate protection of public health and safety. In addition, see the response to Concern 2(A) for information regarding the NRC's response to the terrorist attacks of September 11, 2001.

   (B) NRC prepared a generic environmental impact statement (EIS) during the development of the regulations for the interim storage of spent fuel (10 CFR Part 72). This generic

EIS for spent fuel storage found that, "[b]ecause of the physical characteristics and conditions of storage that include specific security provisions, the potential risk to the public health and safety due to accidents or acts of sabotage at a 'storage only' facility also appears to be extremely small." When the general license provisions for dry spent fuel storage were proposed to be added to the NRC regulations, they were published in the Federal Register for public comment. In the Federal Register notice for the proposed rule (54 FR 19379, dated May 5, 1989), NRC presented the results of its environmental assessment (EA). The EA summarized a number of related environmental reviews that NRC had performed, which included evaluations of the risks and potential consequences of accidents and sabotage events involving dry spent fuel storage systems. In that EA, NRC concluded that dry spent fuel storage under a general license by reactor licensees would not have a significant environmental impact.

Furthermore, as NRC approves new dry spent fuel storage systems for use under the general license provisions, they are added to the list of approved casks through rulemaking. In each rulemaking, NRC performs an additional EA, based on the requested action. As a result, NRC performed an EA for the NUHOMS system when the system was first approved in 1994, and for each amendment to the NUHOMS since then. The last NUHOMS amendment was proposed for addition to the list of approved casks in the Federal Register, in November 2001. In each case, NRC determined that use of the NUHOMS system would not have a significant effect on the environment.

In addition to these environmental reviews, the original EIS for the Oyster Creek site is also applicable to the operation of an ISFSI under the general license provisions of 10 CFR Part 72. Together, the generic EIS for spent fuel storage, the EA for the general license provisions, the EA for the NUHOMS system design, and the original EIS for the site, form the basis for compliance with the environmental review requirements of the National Environmental Policy Act.

(C) The licensee for the Oyster Creek site notified NRC in a letter on November 29, 1995, of its plans to operate an ISFSI under the Part 72 general licensing provisions. That letter was made available to the public through NRC's public document room, under the Oyster Creek docket. Since that time, the NUHOMS design has undergone four amendment rulemakings with opportunities for public comments. The latest amendment provided an opportunity for public comment in November 2001.

2. Concern: The NUHOMS dry spent fuel storage system is unable to survive a sabotage attack. The petition stated:
   (A) The NUHOMS design basis threat does not consider current acts of terrorism.
   (B) The Oyster Creek ISFSI was licensed without any independent security evaluation of the licensee's ability to defend the storage modules from terrorist activities that could result in a dispersal of radioactive materials.
   (C) NRC should complete its study on the consequences of an aircraft impact with a storage module before any additional NUHOMS systems are loaded.

   Evaluation:
   (A) When the events of September 11, 2001, unfolded, U.S. nuclear power plant facilities, including ISFSIs, already possessed a strong capability to prevent and respond to

many types of terrorist acts that could be directed at them. In addition, the NRC took immediate actions and advised all nuclear power plant facilities to go to the highest level of security. The NRC also issued more than 30 threat advisories to address enhanced security measures in the aftermath of September 11, 2001. In addition, NRC security specialists performed numerous onsite physical security vulnerability assessments at licensed facilities to evaluate the effectiveness of the enhanced security measures that were put into place. These assessments demonstrated that the industry responded promptly and appropriately to the NRC threat advisories. To this day, all nuclear power plant facilities remain at a heightened security level.

The events of September 11, 2001, were unprecedented, and since that time, the NRC has taken appropriate steps to protect public health and safety. For example, the NRC quickly recognized the need to reexamine basic assumptions underlying the current civilian nuclear facility security and safeguards programs. Shortly after September 11, 2001, Chairman Meserve, with the full support of the rest of the Commission, directed the staff to undertake a comprehensive review of the NRC's security and safeguards programs. This is an ongoing review and as results become available, they will be evaluated and, if appropriate, incorporated into NRC's regulatory processes. The comprehensive review takes advantage of insights gained by the NRC in consultation with the Office of Homeland Security, Federal Bureau of Investigation (FBI), Department of Transportation (DOT), Department of Energy (DOE), and others. This cooperation further allows the NRC to keep abreast of the current threat environment, and communicate its actions to other Federal agencies to ensure an appropriate response to security concerns throughout the nation's entire critical energy infrastructure.

In light of the current threat environment, the Commission concluded that specific security measures, including those outlined in threat advisories and voluntarily implemented at nuclear power plant facilities, should be embodied in an Order consistent with the NRC's established regulatory framework. On February 25, 2002, the NRC issued Orders to all operating power reactor licensees to require that certain interim compensatory measures (ICMs) for security be taken beyond that called for by current regulations. In addition, the NRC issued similar Orders to all ISFSI licensees on October 16, 2002, to require implementation of ICMs designed to enhance security at these facilities. These new requirements will remain in effect pending notification from the Commission that a significant change in the threat environment has occurred, or until the Commission determines that other changes are needed following the comprehensive review of current safeguards and security programs. The Orders were effective immediately upon issuance. For the most part, the Orders formalized a series of steps that nuclear power plant facilities had been advised to take by the NRC in the aftermath of the terrorist attacks on September 11, 2001; however, the Commission included certain additional security enhancements in the Orders. Details of certain new security requirements cannot be made public, but some of the specific measures implemented by the licensees in response to the advisories and ICMs included increased patrols, augmented security forces and capabilities, additional security posts, installation of additional physical barriers, vehicle checks at greater stand-off distances, enhanced coordination with law enforcement and military authorities, and more restrictive site access controls for all personnel. The NRC staff is verifying that all

licensees are in compliance with the ICMs by conducting independent inspections at licensee sites.

The NRC continues to reexamine its activities to determine whether any significant safeguards vulnerabilities exist. If a vulnerability is identified, the NRC staff will revise physical protection, material control, and other requirements, as appropriate. Also, the NRC will continue to assist the Office of Homeland Security and other Federal agencies to evaluate threats beyond the feasible response capabilities of NRC licensees in order to consider the need to augment the site security organization with public assets, such as local law enforcement personnel.

In addition, the Federal government has taken a number of steps to improve aviation security and minimize the threat of terrorists using airplanes to damage facilities critical to our nation's infrastructure. The Commission's view is that the efforts associated with protecting our nation from terrorist attacks by air should be directed toward enhancing security at airports and on airplanes. Thus, the Commission endorses the prompt response by the Congress to strengthen aviation security under the Aviation and Transportation Security Act of 2001, because this legislation provides for improved protection against air attacks on all industrial facilities, both nuclear and non-nuclear. The NRC further supports the steps taken by the Federal Aviation Administration (FAA) to improve aircraft security, including enhanced passenger and baggage screening, strengthening of cockpit doors, and the Air Marshal program. The U.S. intelligence community and various Federal law enforcement agencies have also increased efforts to identify potential terrorists and prevent potential attacks before they occur. For example, the FAA and Department of Defense (DOD) have acted more than once to protect airspace above nuclear power plant facilities from what were thought to be credible threats against certain specific sites. These potential threats were later judged to be non-credible.

The FAA and DOD also concluded that a Notice To Airmen (NOTAM) was an appropriate means to help protect the air space above sensitive sites. Accordingly, the FAA issued a NOTAM strongly urging pilots to:

> "not circle or loiter over the following sites: Nuclear/Electrical power plants, power distribution stations, dams, reservoirs, refineries, or military installations, unless otherwise authorized by air traffic control or as required to land or depart at towered/non-towered airports."

This notice is still in effect. Should additional restrictions be deemed appropriate as a result of changing or more specific threats, our communication with the other Federal agencies will allow a prompt and coordinated response.

The NRC staff acknowledges that ISFSIs were not specifically designed to withstand a deliberate aircraft crash. Prior to September 11, 2001, the U.S. intelligence community and the NRC did not consider a deliberate aircraft attack against an ISFSI to be a credible threat. Nevertheless, the staff recognizes that design and construction considerations could contribute to an ISFSIs survivability in the event of an aircraft impact or other type of terrorist attack. The NRC requires that these facilities be

designed with a defense-in-depth philosophy to withstand severe natural phenomena; including earthquakes, tornadoes, and airborne missiles, such as automobiles or telephone poles. This robust design would therefore provide substantial protection for the spent fuel in the event of an aircraft crash or other terrorist attack. Ultimately, the capability of a site to successfully cope with an aircraft crash will depend upon a number of factors, including the ISFSI's specific design and construction features, the design and flight characteristics of the aircraft, the point of impact, and the response of onsite and offsite resources. The NRC staff believes that the likelihood of an intentional aircraft crash into a dry spent fuel storage facility is very small, and even if it were to occur, such an event is unlikely to result in a significant release, if any, of radioactive material beyond the immediate vicinity. Therefore, NRC has reasonable assurance that ISFSIs, including the one at Oyster Creek, can be operated safely and that the public health and safety will be adequately protected.

The staff further notes that the NRC, in conjunction with DOE laboratories, is continuing a major research and engineering effort to evaluate the vulnerabilities and potential effects of a large commercial aircraft impacting a nuclear power plant facility. This effort also includes consideration of possible additional preventive or mitigative measures to further protect public health and safety in the event of a deliberate aircraft crash into a nuclear power plant or ISFSI. The final results from that analysis are not yet available. If the ongoing research and security review recommends any other security enhancements, the NRC will take appropriate action.

(B) See the response to Concern 2(A).

(C) See the response to Concern 2(A).

3. Concern: The Oyster Creek security measures are not adequate for fuel-handling activities.

The petition states:

(A) The fuel is vulnerable to accident and terrorist attack during transport from the spent fuel pool to the ISFSI.

(B) The spent fuel is most vulnerable to terrorist attack after the assemblies are taken out of the spent fuel pool and air-dried before being sealed and loaded into the transfer cask.

(C) The reactor building walls and roof, where spent fuel transfer takes place, do not offer adequate protection from terrorist attacks.

Evaluation:

(A) The spent fuel is moved from the spent fuel pool to the ISFSI within the welded steel fuel canister. This fuel canister is handled during these movement activities using the transfer cask. The transfer cask is a very robust device designed to provide radiation shielding and protect the fuel canister during handling operations. In addition to the protection provided by the transfer cask, the security measures discussed in the response to Concern 2(A) provide protection against terrorists attacks. Therefore, the public health and safety are protected through use of the robust transfer cask in conjunction with the licensee's security measures, and the fuel is adequately protected from accidents and terrorist attacks during fuel handling activities.

(B) The fuel canister is placed in the transfer cask before being moved to the spent fuel pool for fuel loading. The spent fuel assemblies are loaded into the fuel canister under water in the spent fuel pool by moving fuel from the spent fuel pool racks to the fuel canister. The transfer cask with the fuel canister is removed from the pool and set down adjacent to the pool for lid welding and vacuum drying operations. The fuel canister is then backfilled with helium, the vent and drain ports are sealed, and the canister is moved to the ISFSI pad. As a result, the scenario postulated by the petitioner does not exist as the spent fuel is in the fuel canister, which is in the transfer cask, prior to being removed from the spent fuel pool. In addition, see the response to Concern 2(A) for information regarding the NRC's response to the terrorist attacks of September 11, 2001.

(C) The reactor building contains the spent fuel pool and is the location where spent fuel is transferred from the spent fuel pool to dry storage casks. The reactor building is located within the protected area and afforded protection under the same physical security protection program as the nuclear power plant. In addition, certain spent fuel pool design features could contribute to ensuring public health and safety in the event of a deliberate attempt to crash an aircraft into the reactor building. Specifically, spent fuel pools are small in size relative to the rest of the plant. This characteristic would make the spent fuel pools difficult to target. In addition, the NRC's requirements that spent fuel pools be designed to withstand a variety of design-basis events such as tornadoes (and missiles generated by tornadoes), hurricanes, fires, floods, and earthquakes have resulted in nuclear plant designs that afford a measure of protection against deliberate aircraft impacts or other terrorist attacks. Spent fuel pools are massive structures with thick walls constructed of reinforced concrete. Furthermore, the defense-in-depth design philosophy used in nuclear facilities means that systems critical to the safety of stored fuel have redundant and separated systems in order to ensure safety. The February 25, 2002, NRC Orders to reactor licensees also directed them to evaluate and address potential vulnerabilities of spent fuel pools and the reactor plant itself, and to develop specific guidance and strategies to respond to a hypothetical event that damages large areas of the plant, because of explosions or fire. Collectively, these measures ensure that adequate protection is provided for the reactor building and spent fuel pool.

The staff recognizes that additional requirements beyond those provided by existing regulations and the ICMs may be warranted. The comprehensive review of the NRC's safeguards and physical security programs initiated by the Commission following the September 11, 2001, terrorist attacks include specific studies on the impacts of aircraft on nuclear power plant facilities, including the spent fuel pool housed in the reactor building. The review also includes an evaluation of the potential consequences of terrorist attacks using various explosives or heat-producing devices on spent fuel pools and spent nuclear fuel dry casks at spent nuclear fuel storage sites. The staff will use the insights gained from these studies as it considers the need for further security enhancements.

4. Concern: During the October 30, 2002, teleconference call, the petitioners requested that NRC address whether the accident scenario had been evaluated for a plane crashing into

the spent fuel pool building while the fuel canister is positioned adjacent to the pool during lid welding and canister drying operations.

Evaluation:

The NUHOMS fuel canister is contained within a transfer cask during handling operations, before insertion into the concrete module. The transfer cask is a robust steel cylinder, designed to protect the canister and its contents from damage during handling activities, including drop accidents and other design basis accident conditions. The transfer cask is used to lift the fuel canister out of the pool after being loaded with spent fuel and is set down on an area adjacent to the pool for dry storage preparation activities, lid welding, and canister drying.

Although the NUHOMS transfer cask has not specifically been evaluated for the ability to withstand the impact of a plane while located adjacent to the spent fuel pool, the system has been evaluated for design basis accidents such as a drop of the transfer cask with the fuel canister inside, or the impact of a tornado missile. To provide this level of protection, the design must be robust. Therefore, the inherent robustness of the transfer cask and fuel canister configuration, in addition to the actions discussed in the response to Concern 2(A), will limit the release of radioactive materials under an aircraft collision or other terrorist attack, and continue to protect public health and safety.

5. Concern: The Oyster Creek emergency evacuation plan is inadequate. The petition stated:

(A) Draft Report SC 46-14, "Radiation Protection Issues Related to Terrorist Activities That Result in the Dispersal of Radioactive Material," shows that a non-radiological dispersal device of 1000 lbs of TNT near 100 kg of pressurized water reactor fuel yields a deadly total effective dose to a distance of 60 to 70 miles.

(B) The emergency evacuation plan does not consider a disruption caused by a terrorist attack.

Evaluation:

(A) The document referenced in the petition is a draft report presented to the National Council on Radiation Protection and Measurements (NCRP). However, the draft report results were apparently not fully endorsed by NCRP. The final version of the document was issued in NCRP Report No. 138, "Management of Terrorist Events Involving Radioactive Material," and contained less specific results for this type of threat than those presented in the draft report. In particular, the NCRP Report discusses the threat of a radiological dispersal device by placing a conventional explosive adjacent to radioactive material. However, placing an explosive device next to radioactive material is significantly different from placing the device next to a robust storage cask, as it is much more resistant to the blast. Furthermore, NRC has performed preliminary evaluations of dry spent fuel storage systems subject to a truck bomb sabotage event and determined that public health and safety will continue to be protected and the need for an immediate evacuation would not likely be necessary.

(B) Emergency preparedness programs are designed to cope with a spectrum of accidents including those involving rapid, large releases of radioactivity. Emergency

preparedness exercises have invariably included large releases of radioactivity that occur shortly after the initiation of events. Necessary protective actions and offsite response are not influenced by the cause of accidents. Emergency planning is not predicated on a determination of the probability of a given accident sequence. Rather, emergency planning assumes the improbable has already occurred and develops a response to address the consequences of potential releases. Whether releases from the plant occur as a result of terrorist acts or equipment malfunctions, emergency plans guide decision makers and responders in the same way. Although the Oyster Creek Emergency Plan is not specifically designed to consider disruption caused by a terrorist attack, the response to a radiological emergency at a nuclear facility involves a number of interrelated functions performed by onsite and offsite components of each site's emergency response organization. The effectiveness of this organization is critical to ensuring the health and safety of the public. In recognition of this important function, NRC requires licensees to conduct periodic drills and exercises. In addition, NRC requires that licensees conduct Emergency Plan drills and exercises as close to actual accident conditions as practical, and involve the principal functional areas of the licensees' emergency response capabilities.

NRC has reasonable assurance, based on the robustness of dry spent fuel storage systems, that a potential breach in the fuel canister caused by a sabotage event would result in only a small release of radioactive material and would be localized to the damaged dry storage system. Thus, public health and safety would continue to be protected and the need for an immediate evacuation would not likely be necessary.

6. Concern:The quality of the NUHOMS systems planned for use at Oyster Creek is inadequate. The petition stated:
   (A) The NUHOMS systems delivered to Oyster Creek were not properly fabricated and qualified to last the design life.
   (B) The spent fuel module was not empirically tested to determine whether it is environmentally qualified to endure the licensed life of the module.

   Evaluation:
   (A) The licensee is required to ensure that the dry storage system is constructed in accordance with design and regulatory requirements. The storage system vendor is also responsible for ensuring compliance with these same requirements. NRC inspects the licensee's vendor oversight program and has performed inspections of the NUHOMS vendor and fabricator. NRC inspections have not identified any safety significant deficiencies that would affect the ability of the NUHOMS systems to safely store spent fuel at Oyster Creek.

   (B) NRC staff evaluates environmental conditions as a part of its technical review of the storage design prior to approval. The technical review includes evaluating the storage design characteristics such as structural, thermal, radiation shielding, radioactive material confinement, nuclear criticality, material interactions, and overall performance. The technical review considers adverse environmental conditions such as earthquakes, tornados, tornado missiles (such as automobiles), floods, and temperature extremes. Dry storage systems are evaluated using conservative analysis and assumptions to store the spent fuel safely for a design life of 20 years, at a minimum.

The NUHOMS system has been designed, analyzed, and evaluated against recognized national codes and standards for material performance. These codes and standards are developed utilizing empirical data, where it is available, and provide criteria for evaluating the design life performance. This is an accepted engineering practice for demonstrating design capability.

Based on the specific items noted above and cited by the petitioners as the bases for their petition, the following petitioner requests are dispositioned as follows:

1. The petitioners requested that NRC suspend CoC No. 1004 for the NUHOMS dry spent fuel storage system, halt transfer of spent fuel from wet pool storage to dry storage modules at Oyster Creek, and halt loading of all NUHOMS systems until a thorough inspection has been completed to verify compliance with fabrication requirements.

   Response: In our letter dated August 12, 2002, we notified the petitioners that we found no safety basis for NRC immediately suspending CoC No. 1004 and prohibiting transfer of spent fuel from wet pool storage to dry storage modules at Oyster Creek, but would continue to consider the request as our safety review proceeded. Based on the staff's safety review, as detailed in the specific items above, we find no basis for suspending CoC No. 1004 nor disallowing transfer of spent fuel from wet storage to dry storage at Oyster Creek.

2. The petitioners requested that NRC conduct a site-specific public hearing before independent judges on the dry cask licensing proceeding for Oyster Creek and other nuclear issues identified in the petition.

   Response: AmerGen is licensed by the NRC to operate the Oyster Creek Nuclear Generating Station under the provisions of 10 CFR Part 50. A 10 CFR Part 72 general license is granted to persons authorized to possess or operate nuclear power reactors under 10 CFR Part 50, in accordance with 10 CFR 72.210. Consequently, AmerGen has already been granted a general license under the provisions of 10 CFR Part 72 to operate an ISFSI provided that an NRC-approved spent fuel storage design is used and that certain other conditions are met. The Nuclear Waste Policy Act of 1982 (NWPA) mandated that NRC establish a process for approving interim storage system designs through rulemaking for use at any power reactor site. The 10 CFR Part 72 general licensing requirements were noticed as a proposed rule in the Federal Register in May 1989. NRC received 237 comment letters in response to the proposed rule. Of the 237 letters, 52 were in opposition to the proposed rule. NRC addressed these comments in the "Statements of Consideration" for the proposed rule (55 FR 29182, dated July 18, 1990).

   One commenter stated that the proposed rule did not guarantee hearing rights as mandated by the Atomic Energy Act. NRC responded, in part, that the operating reactor licensee is required to address the ISFSI activities within the plant's safety analysis report. If no amendment to the operating license is needed, then spent fuel may be stored at an ISFSI under the general licensing provisions. The 10 CFR Part 72 general licensing provisions became effective in August 1990 and implemented the mandate of the NWPA.

Dry spent fuel storage systems are reviewed and approved by NRC for use under the 10 CFR Part 72 general licensing provisions. As each cask design is approved, it is added to the list of approved storage designs in 10 CFR 72.214 through a public rulemaking process. The public is provided an opportunity to comment on each spent fuel storage system design and any amendments to that design, prior to final approval for use. During the NRC approval process for the NUHOMS spent fuel storage system planned for use at Oyster Creek, the public was provided with an opportunity to comment on the proposed rule to add the design to the list of approved storage systems in 10 CFR 72.214.

The licensee for the Oyster Creek site notified NRC in a letter on November 29, 1995, of its plans to operate an ISFSI under the Part 72 general licensing provisions. That letter was made available to the public through NRC's public document room. Since that time, the NUHOMS design has undergone four amendment rulemakings with opportunities for public comments on each amendment. The latest amendment that provided an opportunity for public comment became effective in February 2002. Based on the staff's review, as detailed in the specific items above, we find no basis to conduct a hearing on the Oyster Creek ISFSI activities nor for the other concerns identified in the petition.

3. The petitioners requested that NRC make a determination of the NUHOMS' capability to withstand terrorist attacks similar to those on September 11, 2001.

   Response: The NRC, other federal, state, and local agencies, and the nuclear industry have implemented a significant number of measures to prevent and mitigate terrorist attacks similar to those on September 11, 2001. These measures are summarized in the response to Concern 2(A). In addition, although dry spent fuel storage systems are not specifically assessed as to their ability to withstand the impact of a commercial aircraft, the design of the storage systems must have the capability to provide for the protection of public health and safety against naturally occurring events. This includes flying debris from tornadoes or hurricanes, and seismic events. To provide this level of protection, the design must be robust. This robustness prevents the dispersion of radioactive materials under analyzed accident conditions. The inherent robustness of the design will limit the release of radioactive materials under a terrorist attack, and continue to protect public health and safety.

4. The petitioners requested that NRC develop criteria and regulations to empirically verify dry storage system capability and to apply those requirements to the Oyster Creek storage design prior to approval.

   Response: The NRC technical review includes evaluating storage design characteristics such as structural, thermal, radiation shielding, radioactive material confinement, nuclear criticality, material interactions, and overall performance. The technical review considers adverse environmental conditions such as earthquakes, tornados, tornado missiles, floods, and temperature extremes. The NUHOMS system has been designed, analyzed, and evaluated against recognized national codes and standards for material performance. These codes and standards are developed utilizing empirical data, where it is available, and provide criteria for evaluating the design life performance. This is an accepted engineering practice for demonstrating design capability.

Conclusion

The NRC staff has evaluated the NRC actions requested by the petitioners, using the information provided in the aforementioned documents, the PRB teleconference, and the petitioner's comments to the proposed Director's Decision. NRC has determined that the requests in the petition do not have a sufficient safety basis and, therefore, denies this petition based on its evaluation of the information provided by the petitioners.

As provided in 10 CFR 2.206(c), a copy of this Director's Decision will be filed with the Secretary of the Commission for the Commission to review. As provided for by this regulation, the decision will constitute the final action of the Commission 25 days after the date of the decision unless the Commission, on its own motion, institutes a review of the decision within that time.

Dated at Rockville, Maryland, this 17th day of April 2003.

/RA/ /s/

Martin J. Virgilio, Director
Office of Nuclear Material Safety
and Safeguards

7590-01-P

U.S. NUCLEAR REGULATORY COMMISSION

DOCKET NOS. 72-15 AND 50-219

LICENSE NO. DPR-16

AMERGEN ENERGY COMPANY, LLC.

OYSTER CREEK GENERATING STATION

NOTICE OF ISSUANCE OF DIRECTOR'S DECISION UNDER 10 CFR 2.206

Notice is hereby given that the Director, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission (NRC), has issued a Director's Decision with regard to a petition dated June 21, 2002, filed by Ms. Edith Gbur of the Jersey Shore Nuclear Watch, et al., hereinafter referred to as the "petitioners." The Petition concerns the operation of AmerGen Energy Company's Oyster Creek Independent Spent Fuel Storage Installation (ISFSI). The petitioners requested NRC to take the following actions:

1. Suspend Certificate of Compliance (CoC) No. 1004 for the NUHOMS dry spent fuel storage system.

2. Halt transfer of spent fuel from wet pool storage to dry storage modules at the Oyster Creek Generating Station (Oyster Creek).

3. Conduct a site-specific public hearing before independent judges on the dry cask licensing proceeding for Oyster Creek and other nuclear issues identified in the petition.

4. Make a determination of the NUHOMS' capability to withstand terrorist attacks similar to those on September 11, 2001.

5. Develop criteria and regulations to empirically verify dry storage system capability and to apply those requirements to Oyster Creek.

6. Halt loading until a thorough inspection of the total system has been completed to verify that the NUHOMS modules were fabricated properly and will last the design life.

As the basis for the request, the petitioners presented safety concerns in the following areas:

1. Location of the Oyster Creek independent spent fuel storage installation (ISFSI) relative to local roads and communities;

2. Ability of the NUHOMS dry spent fuel storage system to survive a sabotage attack;

3. Adequacy of Oyster Creek security measures for fuel-handling activities;

4. Adequacy of the Oyster Creek emergency evacuation plan; and

5. Quality of the NUHOMS systems planned for use at Oyster Creek.

The petitioners addressed the NRC Petition Review Board in a teleconference on July 18, 2002, to clarify the bases for the petition. The meeting was held to provide the petitioners and licensee an opportunity to present additional information and to clarify issues raised in the petition. Subsequently, the petitioners sent NRC a series of form letters signed by various members of the public in August 2002, to demonstrate additional support for the petition. On November 8, 2002, NRC received additional form letters forwarded by the petitioners. The NRC sent a copy of the proposed Director's Decision to the petitioners and AmerGen for comment on December 10, 2002. The petitioners responded with comments by e-mails dated February 6, March 5, 10, and 19, 2003. The comments and the staff responses to them are available electronically through NRC's Public Electronic Reading Room at http://www.nrc.gov/reading-rm/adams.html under docket number 07200015.

The Director of the Office of Nuclear Material Safety and Safeguards has determined that the six requests of the petitioner are denied. The reasons for this decision are explained in the Director's Decision pursuant to 10 CFR 2.206 [DD-03-01], the complete text of which is available in ADAMS for inspection at the Commission's Public Document Room, located at One White Flint North, 11555 Rockville Pike (first floor), Rockville, Maryland, and via the NRC's Web site (http://www.nrc.gov) on the World Wide Web, under the "Public Involvement" icon.

The Director's Decision addressed the petitioner's requested actions as follows:

1. Suspend CoC No. 1004 for the NUHOMS dry spent fuel storage system, halt transfer of spent fuel from wet pool storage to dry storage modules at Oyster Creek, and halt loading of all NUHOMS systems until a thorough inspection has been completed to verify compliance with fabrication requirements.

   The NRC staff found no safety basis for NRC immediately suspending CoC No. 1004 and prohibiting transfer of spent fuel from wet pool storage to dry storage modules at Oyster Creek, but would continue to consider the request as our safety review proceeded. Based on the staff's safety review, as detailed in the Director's Decision, NRC found no basis for suspending CoC No. 1004 nor disallowing transfer of spent fuel from wet storage to dry storage at Oyster Creek.

2. Conduct a site-specific public hearing before independent judges on the dry cask licensing proceeding for Oyster Creek and other nuclear issues identified in the petition.

   Based on the staff's review, as detailed in the Director's Decision, NRC found no basis to conduct a hearing on the Oyster Creek ISFSI activities nor for the other concerns identified in the petition.

3. Make a determination of the NUHOMS' capability to withstand terrorist attacks similar to those on September 11, 2001.

The NRC, other Federal, State, and local agencies, and the nuclear industry has implemented a significant number of measures to prevent and mitigate terrorist attacks similar to those on September 11, 2001. These measures are summarized in the Director's Decision. In addition, although dry spent fuel storage systems are not specifically assessed as to their ability to withstand the impact of a commercial aircraft, the design of the storage systems must have the capability to provide for the protection of public health and safety against naturally occurring events. This includes flying debris from tornadoes or hurricanes, and seismic events. To provide this level of protection, the design must be robust. This robustness prevents the dispersion of radioactive materials under analyzed accident conditions. The inherent robustness of the design will limit the release of radioactive materials under a terrorist attack, and continue to protect public health and safety.

4. Develop criteria and regulations to empirically verify dry storage system capability and to apply those requirements to the Oyster Creek storage design prior to approval.

The NRC technical review includes evaluating storage design characteristics such as structural, thermal, radiation shielding, radioactive material confinement, nuclear criticality, material interactions, and overall performance. As discussed in the Director's Decision, the NUHOMS design has been analyzed using industry standards for material characteristics based on empirical data for design life performance. Dry storage systems are evaluated using conservative analysis and assumptions to store the spent fuel safely for a design life of 20 years, at a minimum.

A copy of the Director's Decision will be filed with the Secretary of the Commission for the Commission's review in accordance with 10 CFR 2.206 of the Commission's regulations. As provided for by this regulation, the Director's Decision will constitute the final action of the Commission 25 days after the date of the decision, unless the Commission, on its own motion, institutes a review of the Director's Decision in that time.

Dated at Rockville, Maryland, this 17th day of April 2003.

FOR THE NUCLEAR REGULATORY COMMISSION

/s/ /RA/

Martin J. Virgilio, Director
Office of Nuclear Material Safety
and Safeguards

April 14, 2003

MEMORANDUM TO: Margaret Federline, Chair
Petition Review Board

FROM: Stephen O'Connor /RA/
Petition Manager

SUBJECT: STAFF RESPONSE TO COMMENTS ON DRAFT DIRECTOR'S DECISION DD-03-01

This memorandum documents the NRC staff response to comments on the proposed Director's Decision (DD) DD-03-01 for the 10 CFR 2.206 petition received from Ms. Edith Gbur of the Jersey Shore Nuclear Watch and other members of the public concerning the operation of AmerGen Energy Company's Oyster Creek Independent Spent Fuel Storage Installation (ISFSI). The proposed DD was issued on December 10, 2002, and requested comments within 30 days. However, one of the petitioners stated that they had not received the proposed DD. The Spent Fuel Project Office (SFPO) sent another copy of the proposed DD to the petitioner on January 7, 2003, and requested comments within 30 days. We received comments on February 6 from one of the petitioners. Subsequently, one of the petitioners requested additional time to submit the remainder of the comments and provided them in several e-mails sent on March 5, 10, and 19, 2003.

In general, we have made some minor editorial changes to the proposed DD for clarity, along with some content changes in response to the petitioner's comments. The following items summarize the comments received from the petitioners that are relevant to the actions requested under the 2.206 petition. Note that some of the petitioners' comments were not related or relevant to the actions requested in the petition regarding storage of spent nuclear fuel and, as such, are not addressed in the following comment resolution:

1. Comment:
   The proposed DD identifies the legal reasons why a public hearing is denied for the Oyster Creek ISFSI. However, the proposed DD fails to address the human issue involved. A public hearing promotes public understanding of the issues involved. Denying the hearing goes against NRC policy of public involvement in nuclear safety. NRC's deceptive regulatory process of approving generic designs without knowing which locations they are to be used violates the intent and spirit of the regulations to the detriment of nuclear safety. Some kind of hearing should be provided. Is NRC going to meet with residents of Oyster Creek?

   Response:
   The proposed DD addressed the petitioners request for a hearing by delineating the congressional mandate for the 10 CFR Part 72 general license process, the NRC rulemaking associated with promulgation of the general licensing process, and the NRC rulemakings associated with approval of spent fuel storage system designs. These rulemakings provide an opportunity for public involvement in the approval process for the storage system designs. The proposed DD concluded that NRC could find no basis to

conduct a hearing on the Oyster Creek ISFSI activities, nor for the other concerns identified in the petition. Nevertheless, the NRC staff has interacted, and will continue to interact, with the public in the vicinity of the Oyster Creek ISFSI and will maintain multiple means for the public to inform NRC of their concerns.

On March 26, 2002, staff from SFPO, Office of Nuclear Reactor Regulation, and Region-I held a public meeting in Lacey Township near the Oyster Creek plant to discuss the planned ISFSI at Oyster Creek. However, the petitioners did not feel that this meeting provided sufficient opportunity to question NRC on the acceptability of an ISFSI at the Oyster Creek site. The petitioners wanted NRC to conduct an adjudicatory hearing to evaluate all aspects of an Oyster Creek ISFSI and this objective was not met by NRC conducting the public meeting.

On November 4, 2002, staff from SFPO and the Office of the General Counsel (OGC) participated in a teleconference with the petitioners to discuss the possibility of requesting the Commission to grant a hearing for the Oyster Creek ISFSI. The OGC staff member explained that NRC has regulations governing when a hearing should be held and that this petition did not meet the criteria for a hearing.

Over the past several years, the NRC has communicated with the petitioners and other members of the public in the vicinity of Oyster Creek through both formal and informal mechanisms, including public meetings, formal correspondence, and telephone and e-mail exchanges. We understand that these exchanges play an important role in maintaining NRC public confidence and will continue to use these communication methods, as appropriate, to address the public's concerns.

This comment does not cause any further considerations to be addressed in the DD, and therefore, the proposed DD does not require any revision from what was previously stated.

2. Comment:
The proposed DD failed to address additional comments from Mr. Atherton's November 15, 2002, letter to NRC. Specifically, the following suggestions were not addressed:
   a. Analyze the worst case impact of a large fully fueled aircraft striking the ISFSI at a 90° angle.
   b. Analyze the potential for and consequences of nuclear criticality with an accident moderator of water or aircraft fuel.
   c. Analyze the worst case consequences of more devastating events.
   d. Analyze radioactivity dispersal beyond the site boundary.
   e. Environmentally qualify structures and equipment.
   f. Analyze the vulnerability of nuclear fuel rods to a terrorist attack during transfer of the rods from the spent fuel pool to a dry storage canister.
   g. Evaluate and resolve identified security problems.

   Response:
   For Items a- d, the proposed DD addressed the capability of dry spent storage systems to protect public health and safety in the event of a terrorist attack. The proposed DD stated that dry storage facilities are designed to withstand severe natural phenomena, including

earthquakes, tornados, and airborne missiles, such as automobiles or telephone poles. The proposed DD went on to state that if a aircraft were intentionally crashed into a dry storage cask, the event would not likely result in a significant release, if any, of radioactive material beyond the immediate cask vicinity. The staff evaluated the effects of credible sabotage scenarios using a commercial jet aircraft and other weapons to attack dry storage systems and found that the storage systems would continue to protect public health and safety.

For Item e, the proposed DD stated that the NUHOMS dry spent fuel storage system was reviewed by staff to safely store the radioactive contents for a design life of 20 years. This staff review included evaluating the design under various adverse environmental conditions using conservative analysis and assumptions.

For Items f and g, the proposed DD stated that during fuel handling activities from the spent fuel pool to the dry storage module, the fuel is placed in a welded steel canister positioned within a transfer cask. The proposed DD also states that the transfer cask is a robust steel structure used for providing radiation shielding and to protect the fuel during handling operations. The proposed DD stated that the transfer cask has been evaluated for design basis accidents such as drop of the transfer cask with the fuel canister inside, or the impact of a tornado missile. The public heath and safety are protected through the use of the fuel contained within the fuel canister, placed within the transfer cask, and the licensee's security measures. The proposed DD stated that the NRC has verified that the licensee's security measures are in compliance with NRC Security Orders by continuing to conduct independent inspections of the Oyster Creek site.

The items identified in this comment do not cause any further considerations to be addressed in the DD, and therefore, the proposed DD does not require any revision from what was previously stated.

3. Comment:
The Oyster Creek emergency evacuation plan does not consider a disruption caused by a terrorist attack on the ISFSI. The proposed DD claimed that the dry casks are robust and that a potential breach of the fuel canister would be localized to the ISFSI. Further, the proposed DD stated that NRC has reasonable assurance that an immediate evacuation would not be necessary in the potential breach of a fuel canister. However, these canisters are an easy target for a terrorist. Without an adequate evacuation plan, NRC's response sacrifices the local population in the event an "unreasonable" terrorist attack occurs and significant radiation is released beyond the site boundary.

Response:
The proposed DD addressed the petitioner's concern that the emergency evacuation plan is not adequate to handle a terrorist attack on an ISFSI. The proposed DD stated that emergency plans are not typically designed to address specific threats, but rather a wide range of emergency situations. The proposed DD also stated that NRC requires licensees to perform periodic drills and exercises that involve the principal functional areas of the licensee's emergency response capabilities. Furthermore, the proposed DD stated that in the unlikely event that a cask is subjected to a terrorist attack causing a breach in a fuel

canister, the release of radioactive material would be little to none and would be localized to the damaged spent fuel storage system. Thus, the need for an immediate evacuation would not likely be necessary.

In the final DD, the staff provided some additional information beyond the proposed DD regarding the broad spectrum of accidents that emergency preparedness programs are designed to cope with.

4. Comment:
The proposed DD stated that a truck bomb exploding next to a dry cask would not damage public health and safety. NRC should provide comparison information between its hypothetical truck bomb and the one used in Oklahoma City. NRC should seek review and upgrading of the evacuation plan to provide for a safe evacuation in case an "unreasonable" attack occurs.

Response:
The proposed DD addressed the petitioner's concern that the emergency evacuation plan was not adequate to handle an "unreasonable" sabotage attack. As stated in the response to Comment 3 above, the emergency plans are not typically designed to address specific threats, but rather a wide range of emergency situations. The NRC has access to the information on the truck bomb used at the Federal Building in Oklahoma City and has applied this knowledge in evaluating the continued safety of nuclear power plants and, likewise, the ISFSI.

This comment does not cause any further considerations to be addressed in the DD, and therefore, the proposed DD does not require any revision from what was previously stated.

5. Comment:
The proposed DD does not address several concerns related to the location of the ISFSI to a major highway:
   a. NRC's determination that the ISFSI meets pre-9/11 regulations does not address post-9/11 concerns.
   b. NRC should consider requiring relocation of the ISFSI or reinforcing the site with structural protection to make it a more difficult target.
   c. NRC should compare the radioactivity of the fuel inside the cask with measurements on the outside the cask.
   d. NRC should identify the accident and terrorist scenarios that have been postulated.

Response:
For Items a and b, the proposed DD addressed the petitioner's concern that the regulations governing the ISFSI location do not take into account the increased threat of terrorism and should be revised to consider making the ISFSI a more difficult target. The proposed DD stated that NRC continues to reexamine its activities to determine any significant safeguards vulnerabilities. If a vulnerability is identified, the NRC staff will revise physical protection, material control, and other requirements, as appropriate.

For Item c, the proposed DD addressed the petitioner's concern from the perspective of the radiation dose to members of the public in close proximity to the ISFSI. The proposed DD stated that the licensee is required to maintain radiation dose at the site boundary to 25 millirem per year. The proposed DD also stated that this radiation dose is the equivalent of approximately one tenth of the total radiation dose that an average person receives from the natural environment over the period of a year. Furthermore, although the spent fuel contents of the storage system are highly radioactive, the proposed DD stated that radioactive material inside of the fuel canister has been analyzed to remain contained within the fuel canister under all postulated accident conditions and, thus, would not pose a risk to public health and safety.

For Item d, the proposed DD addressed the petitioner's concern that the spent fuel storage system had been evaluated for accident and terrorist scenarios. The proposed DD stated that NRC has evaluated dry spent fuel storage systems to withstand various accident scenarios caused by environmental conditions and natural phenomena, and fire and explosion events. The specific accident scenarios for the NUHOMS system are discussed in detail in the Final Safety Analysis Report for the NUHOMS system. The proposed DD did not address the specific terrorist scenarios that have been postulated. This is considered safeguards information and is not publically available.

The items identified in this comment do not cause any further considerations to be addressed in the DD, and therefore, the proposed DD does not require any revision from what was previously stated.

6. Comment:
The proposed DD did not provide any new structural design information that could make the dry casks less vulnerable to damage from a deliberate attack using a fully fueled large aircraft. In addition, the proposed DD did not address the effects of a large aircraft impacting the reactor building near the spent fuel pool during loading of fuel assemblies into the fuel canister. The NRC staff has stated that it is conducting continuing research of these issues together with security reviews. The petition should remain open until NRC completes its research to provide a formal tracking of the conclusions and a complete formal response is available.

Response:
The proposed DD addressed the petitioner's concern on the ability of the dry storage system to protect public health and safety in the event of a terrorist attack using a commercial aircraft. In particular, the proposed DD provided a substantial discussion of the NRC's response to the September 11, 2001, terrorist events. However, the proposed DD did not provide any new structural design information beyond those already presented in the NUHOMS Final Safety Analysis Report because the structural design was not changed from the design presented in that document. With respect to the NRC's post-9/11 initiatives, the proposed DD stated that NRC is continuing a major research and engineering effort to evaluate the vulnerabilities and potential effects of a large commercial aircraft impacting a nuclear power plant. Furthermore, the proposed DD stated that if the ongoing research and security review recommends any other security enhancements beyond those required in the Security Orders, the NRC will take appropriate action.

Because the research was not initiated in response to this petition and is not needed for NRC to take action on this petition, it would not be prudent to hold the petition open until completion of the effort.

This comment does not cause any further considerations to be addressed in the DD, and therefore, the proposed DD does not require any revision from what was previously stated.

7. Comment:
The proposed DD did not provide experimental verification that the dry cask system design parameters are adequate. Specifically, the proposed DD did not address the following concerns:
   a. There is no documentation showing that a sample dry cask was empirically tested to verify the structural design basis parameters.
   b. The potential adverse effects of age degradation have not been addressed.
   c. Programs to monitor steel rebar corrosion, concrete cracking and spalling, and anchors for the cask and concrete foundation and how the degradation of these components affects design parameters.
   d. Environmental qualification testing should be performed to demonstrate design function for a complete cask system under anticipated operational environments.

   Response:
   The proposed DD addressed these items by stating that the NUHOMS design was analyzed using industry standards for material characteristics based on empirical data for design life performance. The proposed DD also stated that the NRC performed a detailed technical review prior to the NUHOMS approval. Furthermore, the proposed DD stated that this NRC technical review considered adverse environmental conditions and that NRC evaluates dry storage systems using conservative analysis and assumptions to store the spent fuel safely for a design life of 20 years.

   The items identified in this comment do not cause any further considerations to be addressed in the DD, and therefore, the proposed DD does not require any revision from what was previously stated.

8. Comment: The proposed DD uses the terms “reasonable assurance” and “robustness” as a basis for concluding that public heath and safety are protected. Provide a quantitative definition of those terms. Alternatively, if their use is non-quantitative, provide qualitative bounds for these terms.

   Response:
   The term “reasonable assurance” is used consist with the Commission’s enumeration of the relationship between safety and compliance discussed in COMSAJ-97-008, “Discussion on Safety and Compliance.” The term appears in the proposed DD under the Evaluation Section of Concerns 2 and 5 to indicate that NRC has based its decision on whether the NUHOMS systems will continue to protect public health and safety on many factors. Those factors include technical evaluations by NRC experts, test and operational data, international sabotage information, compliance with existing NRC requirements, and insights from operational safety and safeguards events.

   The term “robust” is used throughout the proposed DD to refer to the substantial structural protection provided by the NUHOMS system components. The three major components of the NUHOMS dry storage system are the horizontal storage module, transfer cask, and fuel canister. The sizing and dimensions of these components is based on multiple interrelated technical requirements that consider normal and off-normal operating conditions and accident conditions. The horizontal storage module is constructed of reinforced concrete

approximately a foot thick. The transfer cask is a thick-walled steel cylinder with large protective steel covers secured on each end. The fuel canister is also a thick-walled steel cylinder with thick steel plates welded on each end.

To a large extent, the requirements to protect workers and the public from exposure to radiation during normal storage system operations is typically met by using significant amounts of concrete and metal in dry spent fuel storage systems to provide adequate shielding from the radiation produced by the spent fuel contents. Consequently, the concrete and metal used for shielding purposes can be significant drivers in the overall storage system design while inherently providing additional structural protection beyond the structural requirements themselves. As such, the numerous interrelated requirements for these storage systems tend to provide additional structural robustness which typically results in a design that can withstand accident conditions beyond those analyzed.

The dry storage system components are evaluated by NRC staff to withstand adverse environmental conditions and handling accidents and to continue protecting public health and safety. The information in the NUHOMS Final Safety Analysis Report demonstrates that the spent fuel will continue to be confined under all analyzed conditions.

This comment does not cause any further considerations to be addressed in the DD, and therefore, the proposed DD does not require any revision from what was previously stated.

OFC	SFPO	SFPO	SFPO	SFPO	SFPO	
NAME	SO'Connor *	EZiegler *	JMonninger	LCamper	EWBarch	
DATE	03/28/03	03/31/03	04/11/03	04/14/03	04/14/03	

* - see previous concurrence

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