[7590-01-P]

NUCLEAR REGULATORY COMMISSION

10 CFR Part 72

RIN: 3150-AG74

List of Approved Spent Fuel Storage Casks: Standardized Advanced NUHOMS® -24PT1 Addition

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to add the Standardized Advanced NUHOMS® System to the list of approved spent fuel storage casks. The Standardized Advanced NUHOMS® System has improved shielding and the ability to withstand a higher seismic spectra than the Standardized NUHOMS® System; otherwise, the cask designs are the same. This amendment allows the holders of power reactor operating licenses to store spent fuel in this approved cask system under a general license.

EFFECTIVE DATE: This final rule is effective on (**Insert date 30 days from the date of publication in the Federal Register**).

FOR FURTHER INFORMATION CONTACT: Jayne McCausland, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-6219, e-mail, jmm2@nrc.gov.

SUPPLEMENTARY INFORMATION:

Background

Section 218(a) of the Nuclear Waste Policy Act of 1982, as amended (NWPA), requires that “[t]he Secretary [of the Department of Energy (DOE)] shall establish a demonstration program, in cooperation with the private sector, for the dry storage of spent nuclear fuel at civilian nuclear power reactor sites, with the objective of establishing one or more technologies that the [Nuclear Regulatory] Commission may, by rule, approve for use at the sites of civilian nuclear power reactors without, to the maximum extent practicable, the need for additional site-specific approvals by the Commission.'' Section 133 of the NWPA states, in part, that “[t]he Commission shall, by rule, establish procedures for the licensing of any technology approved by the Commission under Section 218(a) for use at the site of any civilian nuclear power reactor.''

To implement this mandate, the NRC approved dry storage of spent nuclear fuel in NRC-approved casks under a general license by publishing a final rule in 10 CFR Part 72 entitled, “General License for Storage of Spent Fuel at Power Reactor Sites'' (55 FR 29181; July 18, 1990). This rule also established a new Subpart L within 10 CFR Part 72, entitled “Approval of Spent Fuel Storage Casks,'' containing procedures and criteria for obtaining NRC approval of spent fuel storage cask designs.

Discussion

This rule will add the Standardized Advanced NUHOMS® System (Standardized Advanced NUHOMS® -24PT1) to the list of approved cask designs. Following the procedures

specified in 10 CFR 72.230 of Subpart L, Transnuclear, Inc. (TN) submitted an application for NRC approval together with the Safety Analysis Report (SAR) entitled, “Final Safety Analysis Report for the Standardized Advanced NUHOMS® Horizontal Modular Storage System for Irradiated Nuclear Fuel.” The NRC evaluated the TN submittal and issued a preliminary Safety Evaluation Report (PSER) and a proposed Certificate of Compliance (CoC) for the Standardized Advanced NUHOMS® System. The NRC published a proposed rule in the Federal Register (67 FR 6203; February 11, 2002) to add the Standardized Advanced NUHOMS® -24PT1 cask system to the listing in 10 CFR 72.214. The comment period ended on April 29, 2002. Seven comment letters were received on the proposed rule.

Based on its review and analysis of public comments, the NRC staff has determined that no modifications will be made to the proposed CoC, including its appendices, the Technical Specifications, and the Approved Contents and Design Features, for the Standardized Advanced NUHOMS® System. No modifications will be made to the PSER.

The NRC finds that the Standardized Advanced NUHOMS® -24PT1 cask system, as designed and when fabricated and used in accordance with the conditions specified in its CoC, meets the requirements of Part 72. Thus, use of the TN Standardized Advanced NUHOMS® -24PT1 cask system, as approved by the NRC, will provide adequate protection of public health and safety and the environment. With this final rule, the NRC is approving the use of the Standardized Advanced NUHOMS® -24PT1 cask system under the general license in 10 CFR Part 72, Subpart K, by holders of power reactor operating licenses under 10 CFR Part 50. Simultaneously, the NRC is issuing a final SER and CoC that will be effective on **[insert date the rule is effective]**. Single copies of the CoC and SER are available for public inspection and/or copying for a fee at the NRC Public Document Room, 11555 Rockville Pike, Rockville, MD.

Summary of Public Comments on the Proposed Rule

The NRC received seven comment letters on the proposed rule. The commenters included a public citizens' petition, two public citizens, two public interest organizations, one environmental justice organization, and one health professional organization. Copies of the public comments are available for review at the NRC Public Document Room, 11555 Rockville Pike, Rockville, MD. The comments received are also available electronically at the NRC's Public Electronic Reading Room on the Internet at http://www.nrc.gov/reading-rm/adams.html. From this site, the public can gain entry into the NRC's Agencywide Documents Access and Management System (ADAMS), which provides text and image files of NRC's public documents. For more information, contact the NRC Public Document Room (PDR) Reference staff at 1-800-397-4209, or 301-415-4737, or by email to pdr@nrc.gov. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the PDR.

Comments on the Transnuclear, Inc., Standardized Advanced NUHOMS® System

The proposed listing of the TN Standardized Advanced NUHOMS® System within 10 CFR 72.214, "List of approved spent fuel storage casks," has not been changed as a result of the public comments. A review of the comments and the NRC staff's responses follow:

Comment 1: Several commenters strongly opposed the storage or transportation of spent fuel as proposed by Southern California Edison (SCE) at the San Onofre Nuclear Generating Station (SONGS). These commenters raised a number of site-specific issues relating to the SONGS site and the potential storage of spent fuel at the site. One commenter

stated that the development and operation of a “nuclear dump” in a highly populated, dangerously seismically active geological region, without a site-specific examination of critical, scientific, technical, economic, and other relevant issues, is unconscionable as an arrogant and indifferent treatment of the local population’s welfare and safety in both short- and long-term effects. The site-specific issues raised by the commenters included comments related to costs to ratepayers, exact transportation routes for removal of spent fuel from SONGS, notification of public officials along transportation routes, number of shipments, total population along transportation routes, cost of transportation, training of SONGS employees, creation of jobs at SONGS and in the vicinity, decrease in property values near SONGS, concern over the increased capacity of the spent fuel pool, etc. The comments also included several related to emergency planning at SONGS. One commenter stated that the proposed NUHOMS casks that SCE intends to bring onsite at SONGS were not the safest and most secure casks available on the market and that the NRC must force SCE to use the safest cask design for a site that sits in an earthquake fault zone. The commenters believed that the seismic issue must be addressed and independently reviewed by the United States Geological Survey and the NRC and that the issues should be aired in public forums in Southern California. One commenter made reference to several California laws and actions that California should require SONGS to implement. One commenter stated that all television stations should conduct an emergency broadcast check announcement for SONGS.

Response: The site-specific issues related to SCE potentially using the Standardized Advanced NUHOMS® System are beyond the scope of this rulemaking. Similarly, transportation issues are beyond the scope of this rulemaking. This rulemaking is focused solely on whether to add a particular design, the Standardized Advanced NUHOMS® System, to the list of approved casks. The rulemaking will enable licensees to use this cask system under the general license provisions of 10 CFR Part 72. By rulemaking, in § 72.210, the NRC granted

a general license to all reactor facilities to operate an independent spent fuel storage installation (ISFSI). For SCE to be able to operate an ISFSI at SONGS under a general license, certain conditions in Part 72 must be met, which include using casks which have been approved by the NRC via rulemaking, and performing written evaluations which establish, among other things, that the reactor site parameters, including analyses of earthquake intensity, are enveloped by the cask design bases.

This rulemaking is the authority for general licensees and not specific licensees. Any licensee who chooses to use this cask under a general license will need to comply with the Technical Specifications (TS) and the Certificate of Compliance (CoC) conditions, such as training of staff. Decisions made by specific utilities on why a specific cask is chosen over another design are beyond the scope of this rulemaking. If SCE chooses to use the Standardized Advanced NUHOMS® System at the San Onofre site, the licensee will be required to perform an evaluation in accordance with § 72.212 to determine whether activities related to storage of spent fuel under the general license would involve any changes, tests, or experiments under § 50.59. In addition, licensees would evaluate programs, such as emergency planning, as a part of their evaluations under § 72.212. In accordance with § 50.59, the licensee would make changes as necessary to existing systems and any physical changes to the facility as necessary to accommodate new cask designs. Each of these changes would need to be evaluated per § 50.59 to determine the impact on other systems and on existing safety analyses.

Comment 2: One of the commenters stated that all meetings regarding high-level waste storage at SONGS or the transportation of irradiated fuel casks off site must be public and be held near the site and that all documents should be made public.

Response: This comment is beyond the scope of this rulemaking. However, it is NRC policy that meetings with licensees be noticed in advance and be open to the public, unless

proprietary, safeguards, or other protected information is to be discussed. It is also NRC policy that documents be made public through the Agencywide Document Access and Management System (ADAMS), unless they contain proprietary, safeguards, or other protected information.

Comment 3: One commenter recommended that no transportation be allowed without limitation or phase out of the production of the high-level radioactive waste at SONGS. The commenter further recommended that the NRC, Southern California Counties, and the State of California require SCE to replace and phase out energy that increases production of high-level waste with increased renewable sources and conservation technologies ideally before irradiated fuel pools are full in 2006. The commenter believed that any spent fuel stored at SONGS will never leave the site. One commenter stated that the license for SONGS should not be approved until the health effects of offsite radioactive exposure are included in a risk analysis by the California Coastal Commission, State of California, or the NRC. The commenter recommended that the Coastal Commission and the State of California research the legality of SCE's proposed storage site at SONGS.

Response: This comment is beyond the scope of this rulemaking. The NRC approval process for a dry cask CoC does not require site-specific actions such as an independent approval or analysis by a State government or entity.

Comment 4: One commenter supported the view that the structure and financing of the Nuclear Waste Fund requires a major overhaul.

Response: This comment is beyond the scope of this rulemaking. The decision to initiate a major overhaul of the Nuclear Waste Fund is a policy matter for the current Administration to consider in conjunction with Congress. The NRC does not oversee the Nuclear Waste Fund.

Comment 5: One commenter stated that the technical analyses, which are required under § 72.212 to demonstrate how proposed casks will be capable of safely storing spent fuel,

being monitored, and safely transporting the fuel and how the public health, safety, and welfare will be maintained, must be made public. The commenter stated that withholding these important technical analyses is a serious breach of faith and the rules. Several commenters requested that the public comment period be extended until all of the technical analyses and reports have been made fully and publicly available.

Response: The NRC agrees that all documents that support the approval of the cask design must be made public. The documents referenced in the proposed rule which provide the basis for the rule are publicly available. Documents related to SONGS are not part of and do not support this rulemaking and, therefore, a request for those documents is beyond the scope of this rulemaking. The request to extend the public comment period until all of SCE's § 72.212 technical analyses and reports have been made fully and publicly available is beyond the scope of this rulemaking, since it deals with site-specific issues. The availability of the studies is not relevant to the question on which public comment is invited; i.e., whether this generic cask design should be certified by the NRC. A request for extension of the comment period filed by Ms. Patricia Borchmann was denied by letter dated March 27, 2002, from Dr. Donald A. Cool, Director of the NRC's Division of Industrial and Medical Nuclear Safety.

Comment 6: One commenter stated that the NRC's risk assessment and its methodology needs another look and is outdated. The commenter stated that the probability of an extreme hazard (such as tsunami, earthquake, and terrorist attack) is not as low as the outcome of computer modeling and simulations indicate. The commenter stated that during the entire history of the nuclear industry in the United States, the NRC has been in denial about the real risks of operating nuclear generating stations, especially the sites located in highly populated, seismically active areas, as well as the sites that are in areas that make them totally vulnerable to tsunamis.

Response: The commenter did not specifically identify what NRC risk assessment was

of concern, hence this comment is beyond the scope of this rulemaking which is related to the safety review of a storage cask. Risk assessment and methodology development are an evolving process in the NRC. Thus, the risk insights obtained from this process are based on many quantitative and qualitative factors, such as statutory requirements and public and stakeholder interests, before conclusions and recommendations affecting safety are made. Comments about terrorist attacks and seismic conditions are also beyond the scope of this rulemaking. The consideration of seismic conditions at or near a spent fuel storage facility, where a storage cask would be placed, must be addressed by the licensee who uses the casks. Prior to use, each licensee must evaluate the seismic and other site-specific conditions at the site to determine that the design of the cask is suited to the conditions it would be expected to experience during its operational lifetime. This would include seismic loads. The site-specific parameters are delineated in TS 4.4.3.

Comment 7: One commenter strongly believed that dry cask storage raises many troubling public health questions. However, the commenter did not provide any specific examples.

Response: The mission of the NRC is to provide reasonable assurance that the health and safety of the general public will be protected from the dangers involved in the commercial use of radioactive materials. The rulemaking process involves a detailed technical review of the storage cask design to ensure the safety of the cask for storage of spent fuel.

Comment 8: One commenter asked that NRC reconsider the refusal to require or provide a site-specific consideration of this extensive modification of an existing license and its related nuclear facility. The residents of Southern California have a right to formal, legal, and fully adjudicated hearings in any such critical and extensive change at San Onofre.

Response: This comment is beyond the scope of this rulemaking. This rulemaking is focused solely on whether to add a particular design, the Standardized Advanced NUHOMS®

System, to the list of approved casks. The rulemaking will enable licensees to use this cask system under the general license provisions of Part 72. The rulemaking does not address site-specific issues related to potential users. This design could be used by any general licensee. By rulemaking, in § 72.210, NRC granted a general license to all reactor facilities to operate an ISFSI without any further site-specific licensing actions.

Comment 9: A commenter raised the question that, while bolting NUHOMS casks to the pad may prevent tipping, what will keep the concrete pad from cracking leading to possible offsite radioactive exposure.

Response: The concrete storage pad is a site-specific design component of a storage facility, which is beyond the scope of this cask design rulemaking. In accordance with § 72.212, the cask operators (licensees) are required to perform written evaluations to ensure that storage pads have been designed to adequately support the storage casks. See TS Section 4.4.3, Item #8, which provides the seismic parameter that would need to be evaluated. The earthquake motions are defined for the top surface of the concrete storage pad. A specific ISFSI site utilizing the cask system must demonstrate that the design seismic condition for that facility does not produce seismic effects greater than those specified for the top of the storage pad. Further, the pads provide a flat, stable surface for resting the storage casks, and any cracks in the pads would have no effect on cask integrity.

Comment 10: One commenter stated that withholding from the public important technical analyses which would demonstrate how proposed casks will be capable of safely storing spent fuel for the entire lifetime that spent fuel will be stored on site, how it will be monitored, how casks can later be safely transported at some time in the distant future, and how the public health, safety, and welfare will be fully maintained is a serious breach of faith and the rules. Another commenter stated that currently casks are licensed (approved) for 20 years, and was concerned that many utilities, including SCE, have stated in their applications

that the casks may remain on site for up to 100 years.

Response: Technical documents related to this rulemaking are publicly available for inspection and copying at the NRC Public Document Room and may also be viewed and downloaded electronically via the rulemaking website. In accordance with current NRC regulations, a site may store spent nuclear fuel in a given cask for a period of 20 years. Storage of spent nuclear fuel for a period beyond 20 years is beyond the scope of this rulemaking. TS Section 5.2.5 includes a requirement to monitor the thermal performance of each cask, and Section 5.2.3 includes a requirement to develop a radiological environmental monitoring program.

Comment 11. One commenter asked who at the NRC has approved cranes, other moving equipment, and casks, and what independent verification process was used.

Response: The equipment qualification for lifting and moving heavy loads is addressed in the CoC for the cask design as Condition #5. This item states that a plant-specific safety review (under § 50.59 or § 72.48) is required to show operational compliance with plant-specific heavy load requirements. Each licensee who uses the storage cask is responsible for ensuring that any moving equipment that will be used meets NRC regulatory requirements. The NRC conducts inspections of licensees' loading activities, and such inspections would verify that heavy load issues would be addressed by licensees. The NRC approves cask designs for spent nuclear fuel storage in accordance with the requirements of Part 72.

Comment 12: One commenter asked how the NRC's independent verification process for the proposed NUHOMS casks has changed to address problems that arose with other cask designs. Problems included flammable hydrogen gas bubbles, zinc interactions that can cause an explosion, welding problems, procedure adherence, quality control, cracking, helium leaks, cask loading, flaws in neutron shielding material, faulty O-rings, unloading procedures, and cask deterioration within a few years of installation.

Response: When problems have arisen, the NRC has taken appropriate action to avoid future problems. The NRC staff conducted its independent safety review of the proposed cask design, keeping in mind design issues that have occurred in other cask designs over the past several years. It found no evidence of design-specific characteristics or issues that could lead to repeat of the design concerns raised in this comment.

Comment 13: One commenter stated that the NRC must guarantee the public that the following will not occur if NUHOMS casks are allowed for storage of high-level radioactive waste: a) design flaws; b) vents cut off from air flow due to debris; c) faulty parts and equipment; d) cracking; e) casks approved without NRC's CoC; and f) exemptions from NRC policies granted to any casks or cask siting, loading, transferring, or transportation procedures.

Response: The NRC takes its responsibility as a regulatory agency very seriously along with its mission to protect the health and safety of the public from dangers associated with the use of radioactive materials. The NRC staff of technical experts has completed a thorough review of the Standardized Advanced NUHOMS® System cask design. As needed, NRC may conduct inspections of vendors and contractors and may witness dry run exercises and the first fuel loading of the cask when it occurs to verify that the design methods were acceptable, that cooling capability will be maintained, and that proper parts have been used in the fabrication process. No casks can be approved without a CoC being issued, and any exemptions from NRC regulations must be justified and approved by the NRC. In addition, any licensee that uses one of these casks in the future must purchase, use, and maintain the casks in accordance with an NRC-approved Quality Assurance (QA) program. A QA program provides checks and balances to ensure that the quality of the casks is addressed during all stages of design, fabrication, use, maintenance, loading, and unloading (if required).

Comment 14: One commenter asked if there is video footage demonstrating an actual fuel removal into NUHOMS casks at any other nuclear facility? If so, where can the public view a copy? If not, the commenter requested that one be required and sent to all communities that will use NUHOMS casks to store high level radioactive waste onsite for 10-100 years, if not permanently.

Response: The commenter's request for such a video is beyond the scope of this rulemaking. There are no NRC regulatory requirements for licensees to use, or submit as part of an application, video footage demonstrating the loading of spent nuclear fuel into a NUHOMS cask.

Comment 15: One commenter believed that all information, including the NRC independent verification of SCE's studies, demonstrating that NUHOMS casks are capable of withstanding a 7.5-magnitude earthquake should be made available to communities within a 50-mile radius of SONGS.

Response: The comment about verification of SCE's studies is a site-specific issue and therefore beyond the scope of this rulemaking. It is NRC policy that documents be made public through ADAMS, unless they contain proprietary, safeguards, or other protected information. In this case, NRC staff completed its review of the seismic capability of the cask design to withstand the forces of an earthquake that produces accelerations in two horizontal directions of 1.5 g and a vertical acceleration of 1.0 g acting simultaneously, as documented in the SER.

Comment 16: One commenter stated that, according to the NRC in 1990, the "conservative" approach to financing assumptions would entail no repository until 2025, and onsite dry cask storage in the interim. The commenter questioned what assurances (real tests) do residents near the reactor have that casks will not leak, corrode, or in any way negatively impact safety, as the casks are only certified for 20 years and taking into consideration the NRC quote above. The commenter asked what state-of-the-art testing has been done to assure

residents within 50 miles of the ISFSI that NUHOMS casks can withstand earthquakes, faulty welds, corroded welds, fuel leakage, and/or terrorism for 100 years, if not permanently.

Response: The NRC staff completed its review of the seismic capability of the cask design to withstand the forces of an earthquake, and this is documented in the SER. The capability to deal with security threats or terrorism attacks is addressed under Part 73 and is beyond the scope of this rulemaking. Problems with welds and fuel leaking would be addressed by procedures and the QA program of the licensee and implemented during fabrication and loading which is beyond the scope of this rulemaking as well. Dry casks are designed to maintain their confinement integrity for the licensed period; i.e., 20 years. During the life of a cask, the licensee must conduct periodic inspections and maintenance to ensure that the cask design functions remain as specified in the CoC. Storage of spent fuel in this cask design, beyond 20 years, is beyond the scope of this rulemaking. A separate NRC review and approval would be needed for storage beyond the 20-year period.

Comment 17: One commenter asked how damaged fuel assemblies will be handled and what independent verification has the NRC done to assure that this is the safest method of handling damaged fuel assemblies. The commenter asked where the public can view this independent verification.

Response: NRC Spent Fuel Project Office Interim Staff Guidance-1 (ISG-1) states that spent nuclear fuel with known or suspected cladding defects greater than a hairline crack or a pinhole leak (damaged fuel) should be canned for storage. TS 2.1.a states that damaged fuel assemblies shall be placed in confinement cans. The purpose of canning is to confine gross fuel particles to a known, subcritical volume during off-normal and accident conditions, and to facilitate handling and retrievability. ISG-1 is publicly available on the NRC website.

Comment 18: One commenter asked what risk analysis studies the NRC did to assure that high level radioactive waste can be safely transferred to barges, trains, and/or trucks for eventual transportation. The analysis should have included seismic issues regarding an earthquake during transfer of radioactive fuel from pools to casks and from casks to transportation modes. The commenter further stated that if no risk analysis was done, one must be completed before high level radioactive waste is allowed to be transferred from irradiated fuel pools to NUHOMS casks, much less transferred to transportation modes.

Response: Transportation comments are beyond the scope of this Part 72 rulemaking. The NRC has performed a number of transportation risk studies, and currently the Package Performance Study is in progress to study what the effects of impact and fire conditions beyond current regulations would be for a recently approved transportation cask design. The effects of the forces from an earthquake during transfer of radioactive fuel from a spent fuel pool to a storage cask would have to be considered in the procedures and the design of handling equipment in accordance with Part 50 requirements that would be in effect by the licensed utility that would be conducting fuel movement. Dealing with the impact of an earthquake during the movement of casks to a truck or train would be addressed by the requirements of Part 71 which specifies that a number of tests and analyses be performed to determine that the cask can withstand the forces expected to be seen during normal and accident conditions. The forces that a transportation cask can withstand exceed those that would be experienced during an earthquake.

Comment 19: One commenter stated that the NRC has issued a report admitting that irradiated fuel assemblies can still spontaneously combust even after cooling 5 years in pools. The commenter questioned what assurances are there that fuel being transferred into dry casks has been cooled for the minimum 5 years.

Response: The CoC includes TS that state that the fuel that will be loaded in the casks

must be cooled a minimum of 10 years. The loading of casks and the records thereof will be subject to NRC inspection for verification that the TS have been met.

Comment 20: One commenter stated that the NRC must demonstrate that the storage casks can be safely opened after loading, if necessary, before allowing the cask to be filled with radioactive waste.

Response: There are no regulatory requirements for a licensee to demonstrate that fuel can be safely unloaded from a cask prior to the actual loading of fuel. The CoC does, however, specify that the licensee conduct a dry run of an unloading operation. That exercise would not be performed with spent nuclear fuel but would be conducted using "dummy" assemblies.

Comment 21: One commenter stated that the design basis for the proposed casks must be verifiably certified to withstand a 9/11 style terrorist attack (a minimum of one kiloton) and that the cask should not be approved unless it can withstand a 9/11 type terrorist attack.

Response: This comment is beyond the scope of this rulemaking. The design basis of the casks must address the Part 72 criteria to withstand a number of hypothetical accidents. Currently, there are no regulatory requirements for a storage cask to withstand a 9/11 style terrorist attack. Since 9/11, the NRC has issued advisories to licensees who operate storage facilities to augment certain aspects of their security plans and capability. Further, the NRC has issued orders to impose certain security requirements beyond current regulations on these licensees. In addition, the NRC is conducting a thorough review of its current security regulations and is conducting a vulnerability study for spent fuel storage cask designs to determine what the effects would be from a terrorist attack of a different nature, including the crash of a jumbo jet filled with fuel. After completion of these efforts, the NRC will determine what changes are needed to its security regulations and will make them as appropriate.

Comment 22: One commenter stated that no casks have been tested for their

anticipated lifetime on site at nuclear plants.

Response: Spent fuel storage casks are designed to withstand normal and hypothetical accident conditions for their license period of 20 years, in accordance with Part 72 requirements. Licensees must also periodically monitor and inspect casks to verify that safety functions are maintained during operational lifetime. Storage of spent nuclear fuel beyond the 20-year license period is beyond the scope of this rulemaking.

Comment 23: A commenter stated that, in 1984, the NRC issued its waste confidence decision. A summary of the findings includes the temporary storage of spent fuel after cessation of reactor operations and generic determination of no significant environmental impact. The Commission also announced that although it could reach favorable conclusions, it recognized that significant and unexpected events might affect its decision. The commenter stated that it should be obvious to all Americans that the events of 9/11 meet the criteria of "unexpected events" to revisit the NRC's Waste Confidence Decision.

Response: This request to revisit the Waste Confidence Decision is beyond the scope of this rulemaking. Since 9/11, the NRC has taken a number of actions that have affected its licensees. Specifically in the area of spent fuel interim storage, the NRC has issued advisories to licensees who operate storage facilities to augment certain aspects of their security plans and capability. Further, the NRC has issued orders to impose certain security requirements beyond current regulations on these licensees. In addition, the NRC is conducting a thorough review of its current security regulations and is conducting a vulnerability study for spent fuel storage cask designs to determine what the effects would be from a terrorist attack of a different nature, including the crash of a jumbo jet filled with fuel. After completion of these efforts, the NRC will determine what changes are needed to its security regulations and will make them as appropriate.

Comment 24: One commenter asked for information about the number of additional

personnel necessary to prepare for an ISFSI.

Response: There is no requirement for a particular level of staffing in the CoC. The question raised by the commenter is unclear and lacks specificity as to what is being requested. The NRC believes the comment is beyond the scope of this rulemaking.

Comment 25: One commenter recommended that all training of personnel be reviewed and independently verified by experts outside the cask designers and the utility.

Response: TS 5.2.2 requires licensees to train and verify the expertise of personnel to maintain and operate the Standardized Advanced NUHOMS® System at nuclear plants. CoC Condition #8 requires that the licensee perform a full dry run of loading and unloading operations prior to first fuel loading of the cask. The NRC conducts independent inspections of dry run activities at ISFSIs.

Comment 26: One commenter asked what agency approves transportation methods.

Response: Transportation issues are beyond the scope of this rulemaking. The NRC is not certain of the commenter's request when it refers to "transportation methods." For the selection of routes, mode of transportation, or physical protection and control of material, the NRC, in conjunction with the Department of Transportation (DOT) and the Department of Energy (DOE), regulates the safe transport of high level radioactive material from beginning to final destination. It is, however, the responsibility of the shipper to choose the mode of transportation along with routes to be used in accordance with applicable regulations and guidance.

Comment 27: One commenter asked for information as to how transportation methods are independently confirmed to be safe. The commenter cited an incident which occurred in late March in which a truck hauling radioactive waste blew over in Wyoming. The incident was supposedly due to high winds. Regarding this incident, the commenter questioned what would

happen in an earthquake and if high winds are considered when licenses for transport are granted. The commenter questioned that if this were considered, how did the incident happen. If it were not considered, why wasn't it?

Response: This comment, which deals with transportation issues, is beyond the scope of this rule which is for approval of a storage cask design. The NRC, DOE, and DOT have comprehensive and stringent regulations for the safe transport of high level radioactive waste. These regulations address the packaging that must be used and, in the case of spent nuclear fuel, a package would be a cask that would need to be reviewed and approved for safety considerations by the NRC. Choosing a mode of transportation (rail, truck, or barge) would be made by the shipper, and safety in each mode is addressed by DOT and its independent activities. However, the NRC and DOT rely on the robust design of shipping packages to provide reasonable assurance of safe transportation during routine or accident conditions. The packages protect the contents from damage and release and protect the public from unnecessary exposure to radiation. (See also Comment 26.)

Comment 28: One commenter stated that transportation of high level radioactive waste has been postponed several times since 9/11 due to possible terrorist threats. The commenter also stated that one shipment, in the planning stages for years, to ship 125 spent fuel rods on a 2,360-mile journey, was delayed due to 9/11. The casks, unable to be certified in temperatures below 10 degrees Fahrenheit, had to be removed from the train and stored inside for the winter. The commenter stated that the NRC has approved casks for storage and transportation that are unable to hold up to wind and temperature. The commenter questioned how transportation out of their earthquake-prone coastal zone will ever be assured by SCE, by DOE, or by the NRC.

Response: Transportation and site-specific issues are beyond the scope of this rulemaking which deals with the approval of a design for dry storage of spent nuclear fuel. See

response to Comments 21 and 23, above, for a discussion of security concerns. The NRC has reviewed the cask design capability to withstand forces of wind and temperature during storage as documented in the SER.

Comment 29: One commenter questioned how leaking casks could be unloaded if the spent fuel pool were no longer available after the reactor shut down operations.

Response: A licensee who uses an approved spent fuel cask at its storage facility is responsible for continually monitoring the conditions of each of its casks and the radiation levels around the casks. In addition, it must develop procedures to deal with off-normal events and accidents including dealing with the event of a cask that has lost its confinement capability. In the situation where a plant was decommissioned and no longer had a spent fuel pool available, the licensee would have contingency plans in place to deal with a leaking cask on site. Such a plan would include actions to minimize dose to workers and to the public in accordance with NRC regulations.

Comment 30: The commenter asked if the design basis for the outer cement covering for NUHOMS casks has been approved for transportation.

Response: The Standardized Advanced NUHOMS® System is designed for dry storage of spent nuclear fuel, and not for transportation of spent nuclear fuel. If a component of the Standardized Advanced NUHOMS® System were to be transported, it would need to be approved by the NRC for use in the transportation system being used.

Comment 31: One commenter requested that NRC address the concerns about the risks of operating nuclear generating stations, especially spent fuel pools which will remain totally vulnerable to terrorist attack. Another commenter referenced a September 2000 report by the National Council on Radiation Protection and Measurements dealing with the threat of nuclear terrorism that warned that "Targeting nuclear spent fuel elements kept in a storage facility would be an easier target than an operating plant." A successful attack on such a facility

using 1,000 pounds of high explosives could cause radiation contamination over a wide area. This commenter asked what the additional costs and requirements of county, State, and military personnel would be should there be a terrorist attack of vulnerable irradiated fuel pools. The commenter also asked who will bear the additional costs should there be a terrorist attack, especially after termination of operations when irradiated fuel must remain in pools for at least 5 years for cooling.

Response: Comments related to spent fuel pools and security provisions for protection of licensed facilities are beyond the scope of this rulemaking. The NRC reviewed potential issues related to possible radiological sabotage of storage casks at reactor site ISFSIs in the 1990 rulemaking that added Subparts K and L to Part 72 (55 FR 29181; July 18, 1990). NRC regulations in Part 72 establish physical protection requirements for an ISFSI located within the owner-controlled area of a licensed power reactor site. Spent fuel in the ISFSI is required to be protected against radiological sabotage using provisions and requirements as specified in § 72.212(b)(5). Further, specific performance criteria are specified in Part 73. Each utility licensed to have an ISFSI at its reactor site is required to develop physical protection plans, response plans, and to install systems that provide high assurance against unauthorized activities that could constitute an unreasonable risk to public health and safety.

The physical protection systems at an ISFSI and its associated reactor are similar in design features to ensure the detection and assessment of unauthorized activities. Alarm annunciations at the general license ISFSI are monitored by the alarm stations at the reactor site. Response to intrusion alarms is required. Each ISFSI is subject to inspection by NRC. The licensee ensures that the physical protection systems are operating within their design limits. It is the ISFSI licensee who is responsible for protecting spent fuel in the casks from sabotage rather than the certificate holder.

Comment 32: One commenter quoting Ray Shadis stated that the public must be

informed of all potential radiological consequences, including radioactive dose levels and dose distribution, that would result from massive releases or dispersal of radioactive material.

Response: This comment is beyond the scope of this rulemaking. However, Chapter 10 of the SER documents the staff's review of the cask design to ensure that its use will meet the regulatory dose requirements of Parts 20 and 72.

Comment 33: One commenter asked about the proposed security at the high level radioactive waste site (both reactor and irradiated fuel pools) during operation and after retirement.

Response: This comment is beyond the scope of this rulemaking which is focused solely on whether to place the Standardized Advanced NUHOMS® System on the list of approved casks. See response to Comment 31, above.

Comment 34: One commenter asked how SCE and the NRC provide assurance to the public that terrorism cannot occur or cause a radioactive release.

Response: This comment is beyond the scope of this rulemaking. See response to Comment 31, above.

Comment 35: One commenter stated that the Holtec and NUHOMS casks (both steel liner and concrete) could be penetrated by 757 and 767 aircraft and that the NRC must address this issue before any permits are granted and questioned how this concern has been addressed by SCE and the NRC.

Response: The NRC considers the comment to be beyond the scope of this rulemaking which is focused solely on whether to place the Standardized Advanced NUHOMS® cask system on the list of approved casks for storage. See response to Comment 21, above.

Comment 36: One commenter stated that because the spent fuel pools contain many reactor cores, the amount of radioactive material available for release to the environment and

therefore the anticipated consequences, are much greater than for a reactor meltdown, and that "...dispersal of just one portion of one spent fuel assembly by means of high explosives would have radiological consequences much greater than those of a Hiroshima-sized nuclear weapon and would yield near term lethal doses ranging downwind over 60 miles." However, emergency response planning, aimed at reactor accidents, has not been adjusted accordingly. The commenter believed that the issues must be addressed in a risk analysis by the NRC.

Response: Comments related to spent fuel pools and security issues are beyond the scope of this rulemaking. See response to Comment 31, above.

Comment 37: One commenter stated that the design basis threat must encompass not only a 9/11 air assault, but a ground-based assault for more than 10 people, a truck-bomb assault, or weapons launched from a truck or water craft. The commenter stated that nuclear reactors, adjacent spent fuel storage deposits, nuclear fuel reprocessing facilities, transport vehicles, or any high-level waste site are potential targets for the use of high explosives to disperse into the atmosphere the very high levels of radioactivity associated with materials at these facilities. A successful incursion into a nuclear power reactor would require a very heavily armed force, since commercial reactors are very well protected. The core of a commercial reactor is protected by a containment structure sufficient to prevent atmospheric release even if a large airplane were to crash into the facility. Only when the reactor is being refueled and the containment structure is open would atmospheric dispersion of the reactor's nuclear fuel be likely as a result of the use of high explosives. The commenter stated that targeting spent nuclear fuel elements kept in a storage facility would be an easier target than an operating nuclear plant.

Response: This comment is beyond the scope of this rulemaking. See response to Comment 31, above.

Summary of Final Revisions

Based on public comments, no changes from the proposed rule were made to the final CoC for the Standardized Advanced NUHOMS® cask system, nor its appendices, the Technical Specifications, and the Approved Contents and Design Features. In addition, no changes were made to the PSER.

Voluntary Consensus Standards

The National Technology Transfer Act of 1995 (Pub. L. 104-113) requires that Federal agencies use technical standards that are developed or adopted by voluntary consensus standards bodies unless the use of such a standard is inconsistent with applicable law or otherwise impractical. In this final rule, the NRC is adding the TN Standardized Advanced NUHOMS® cask system to the list of NRC-approved cask systems for spent fuel storage in § 72.214. This action does not constitute the establishment of a standard that establishes generally-applicable requirements.

Agreement State Compatibility

Under the "Policy Statement on Adequacy and Compatibility of Agreement State Programs" approved by the Commission on June 30, 1997, and published in the Federal Register on September 3, 1997 (62 FR 46517), this rule is classified as Compatibility Category "NRC." Compatibility is not required for Category "NRC" regulations. The NRC program elements in this category are those that relate directly to areas of regulation reserved to the

NRC by the Atomic Energy Act of 1954, as amended (AEA), or the provisions of Title 10 of the Code of Federal Regulations. Although an Agreement State may not adopt program elements reserved to NRC, it may wish to inform its licensees of certain requirements via a mechanism that is consistent with the particular State's administrative procedure laws but does not confer regulatory authority on the State.

Finding of No Significant Environmental Impact: Availability

Under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, the NRC has determined that this rule is not a major Federal action significantly affecting the quality of the human environment and therefore an environmental impact statement is not required. This final rule adds an additional cask to the list of approved spent fuel storage casks that power reactor licensees can use to store spent fuel at reactor sites without additional site-specific approvals from the Commission. The environmental assessment and finding of no significant impact on which this determination is based are available for inspection at the NRC Public Document Room, O-1F23, 11555 Rockville Pike, Rockville, MD. Single copies of the environmental assessment and finding of no significant impact are available from Jayne M. McCausland, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555, telephone (301) 415-6219, e-mail jmm2@nrc.gov.

Paperwork Reduction Act Statement

This final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget, Approval Number 3150-0132.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.

Regulatory Analysis

On July 18, 1990 (55 FR 29181), the Commission issued an amendment to 10 CFR Part 72. The amendment provided for the storage of spent nuclear fuel in cask systems with designs approved by the NRC under a general license. Any nuclear power reactor licensee can use cask systems with designs approved by the NRC to store spent nuclear fuel if it notifies the NRC in advance, the spent fuel is stored under the conditions specified in the cask's CoC, and the conditions of the general license are met. In that rule, four spent fuel storage casks were approved for use at reactor sites and were listed in 10 CFR 72.214. That rule envisioned that storage casks certified in the future could be routinely added to the listing in § 72.214 through the rulemaking process. Procedures and criteria for obtaining NRC approval of new spent fuel storage cask designs were provided in Part 72, Subpart L.

The alternative to this action is to withhold approval of this new design and issue a site-specific license to each utility that proposes to use the casks. This alternative would cost both the NRC and utilities more time and money for each site-specific license. Conducting site-specific reviews would ignore the procedures and criteria currently in place for the addition of new cask designs that can be used under a general license, and would be in conflict with NWPA direction to the Commission to approve technologies for the use of spent fuel storage at the sites of civilian nuclear power reactors without, to the maximum extent practicable, the need for additional site reviews. This alternative also would tend to exclude new vendors from the business market without cause and would arbitrarily limit the choice of cask designs available to power reactor licensees. This final rulemaking will eliminate the above problems and is consistent with previous Commission actions. Further, the rule will have no adverse effect on public health and safety.

The benefit of this rule to nuclear power reactor licensees is to make available a greater choice of spent fuel storage cask designs that can be used under a general license. The new cask vendors with casks to be listed in § 72.214 benefit by having to obtain NRC certificates only once for a design that can then be used by more than one power reactor licensee. The NRC also benefits because it will need to certify a cask design only once for use by multiple licensees. Casks approved through rulemaking are to be suitable for use under a range of environmental conditions sufficiently broad to encompass multiple nuclear power plants in the United States without the need for further site-specific approval by NRC. Vendors with cask designs already listed may be adversely impacted because power reactor licensees may choose a newly listed design over an existing one. However, the NRC is required by its regulations and NWPA direction to certify and list approved casks. This rule has no significant identifiable impact or benefit on other Government agencies.

Based on this discussion of the benefits and impacts of the alternatives, the NRC concludes that the requirements of the final rule are commensurate with the Commission's responsibilities for public health and safety and the common defense and security. No other available alternative is believed to be as satisfactory, and thus, this action is recommended.

Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission certifies that this rule will not, if promulgated, have a significant economic impact on a substantial number of small entities. This rule affects only the licensing and operation of nuclear power plants, independent spent fuel storage facilities, and Transnuclear, Inc. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the Small Business Size Standards set out in regulations issued by the Small Business Administration at 13 CFR Part 121.

Backfit Analysis

The NRC has determined that the backfit rule (§ 50.109 or § 72.62) does not apply to this final rule because this amendment does not involve any provisions that would impose backfits as defined in the backfit rule. Therefore, a backfit analysis is not required.

Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996,

the NRC has determined that this action is not a major rule and has verified this determination with the Office of Information and Regulatory Affairs, Office of Management and Budget.

List of Subjects In 10 CFR Part 72

Administrative practice and procedure, Criminal penalties, Manpower training programs, Nuclear materials, Occupational safety and health, Penalties, Radiation protection, Reporting and recordkeeping requirements, Security measures, Spent fuel, Whistleblowing.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 552 and 553, the NRC is adopting the following amendments to 10 CFR Part 72.

PART 72--LICENSING REQUIREMENTS FOR THE INDEPENDENT STORAGE OF SPENT NUCLEAR FUEL AND HIGH-LEVEL RADIOACTIVE WASTE

1. The authority citation for Part 72 continues to read as follows:

AUTHORITY: Secs. 51, 53, 57, 62, 63, 65, 69, 81, 161, 182, 183, 184, 186, 187, 189, 68 Stat. 929, 930, 932, 933, 934, 935, 948, 953, 954, 955, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2071, 2073, 2077, 2092, 2093, 2095, 2099, 2111, 2201, 2232, 2233, 2234, 2236, 2237, 2238, 2282); sec. 274, Pub. L. 86-373, 73 Stat. 688, as amended (42 U.S.C. 2021); sec. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846); Pub. L. 95-601, sec. 10, 92 Stat. 2951 as amended by Pub. L. 102 - 486,

sec. 7902, 106 Stat. 3123 (42 U.S.C. 5851); sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332); secs. 131, 132, 133, 135, 137, 141, Pub. L. 97-425, 96 Stat. 2229, 2230, 2232, 2241, sec. 148, Pub. L. 100-203, 101 Stat. 1330-235 (42 U.S.C. 10151, 10152, 10153, 10155, 10157, 10161, 10168).

Section 72.44(g) also issued under secs. 142(b) and 148(c), (d), Pub. L. 100-203, 101 Stat. 1330-232, 1330-236 (42 U.S.C. 10162(b), 10168(c),(d)). Section 72.46 also issued under sec. 189, 68 Stat. 955 (42 U.S.C. 2239); sec. 134, Pub. L. 97-425, 96 Stat. 2230 (42 U.S.C. 10154). Section 72.96(d) also issued under sec. 145(g), Pub. L. 100-203, 101 Stat. 1330-235 (42 U.S.C. 10165(g)). Subpart J also issued under secs. 2(2), 2(15), 2(19), 117(a), 141(h), Pub. L. 97-425, 96 Stat. 2202, 2203, 2204, 2222, 2224, (42 U.S.C. 10101, 10137(a), 10161(h)). Subparts K and L are also issued under sec. 133, 98 Stat. 2230 (42 U.S.C. 10153) and sec. 218(a), 96 Stat. 2252 (42 U.S.C. 10198).

2. In § 72.214, Certificate of Compliance (CoC) 1029 is added to read as follows:

§ 72.214 List of approved spent fuel storage casks.

* * * * *

Certificate Number: 1029

Initial Certificate Effective Date: **(insert effective date of final rule)**

SAR Submitted by: Transnuclear, Inc.

SAR Title: Final Safety Analysis Report for the Standardized Advanced NUHOMS® Horizontal Modular Storage System for Irradiated Nuclear Fuel

Docket Number: 72-1029

Certificate Expiration Date: (**insert 20 years from the effective date of the final rule**)

Model Number: Standardized Advanced NUHOMS® -24PT1

* * * * *

Dated at Rockville, Maryland, this 17th day of December , 2002.

For the Nuclear Regulatory Commission.

/RA/

William D. Travers,
Executive Director for Operations.

Model Number: Standardized Advanced NUHOMS® -24PT1

* * * * *

Dated at Rockville, Maryland, this 17th day of December , 2002.

For the Nuclear Regulatory Commission.

/RA/

William D. Travers,
Executive Director for Operations.

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