# RULEMAKING ISSUE
## AFFIRMATION

June 1, 2001 SECY-01-0097

FOR: The Commissioners

FROM: William D. Travers
Executive Director for Operations

SUBJECT: FINAL RULE: INTERIM STORAGE FOR GREATER THAN CLASS C WASTE

PURPOSE:

To request Commission approval to publish the final rule, in the Federal Register, that would amend 10 CFR Parts 30, 70, 72, and 150. The amendments would allow licensing for interim storage of power reactor-related greater than class C (GTCC) waste in a manner that is consistent with licensing the interim storage of spent fuel and would maintain Federal jurisdiction over the interim storage of reactor-related GTCC waste either on or off the reactor site. These amendments provide an option that would simplify and clarify the licensing process and reduce the potential burden on licensees, the U.S. Nuclear Regulatory Commission (NRC), and Agreement States, with no adverse effect on public health and safety, or the environment.

BACKGROUND:

The amendments respond to a petition for rulemaking (PRM-72-2) submitted by Portland General Electric Company. The amendments would grant the petition in part (allow reactor-related GTCC waste to be licensed under Part 72) and deny the petition in part (not changing the definition of spent fuel to include GTCC waste) by amending NRC's regulations governing the interim storage of reactor-related GTCC waste. NRC received six favorable comments in support of the petition. The staff developed a draft rulemaking plan that was provided to the Commission and to the Agreement States (SECY-97-056, dated March 5, 1997). The Office of the General Counsel submitted additional views to the Commission. In response to the Staff Requirements Memorandum (SRM) dated March 12, 1999, the staff transmitted the proposed

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rule in SECY-00-0021, “Proposed Rule: Interim Storage for Greater than Class C Waste,” dated January 27, 2000. In the SRM dated April 25, 2000, the Commission approved publication, with modifications, of the proposed rule. The proposed rule was published on June 16, 2000 (65 FR 37712). NRC also submitted a letter to the U. S. Department of Energy (DOE), dated June 16, 2000, requesting specific guidance on the advisability of allowing GTCC waste and spent fuel to be commingled in a single container. NRC also requested comments on this, and other issues, in the proposed rule.

Eighteen comment letters were received: Five were from Agreement States (South Carolina, Illinois, Utah, New York, and Maine); 10 from industry (including the Portland General Electric Company, the petitioner, and the Nuclear Energy Institute); one from DOE; one from a private citizen; and one from a consulting firm.

In general, none of the commenters was opposed to the idea of storing reactor-related GTCC waste within an Independent Spent Fuel Storage Installation (ISFSI) licensed under the provisions of 10 CFR Part 72. However, four of the Agreement State commenters were opposed to restricting the licensing authority solely to NRC and believe NRC is not correctly interpreting the Atomic Energy Act. Utah is very concerned about “away-from-reactor ISFSIs,” and believes that storage of GTCC waste should be restricted to at-reactor ISFSIs unless and until decisive plans have been made for permanent disposal of GTCC waste. South Carolina and New York believe NRC and States can effectively collaborate in the regulation of a single facility. Maine believes the rulemaking should be reconsidered because it is not advisable to allow the commingling of spent fuel and GTCC waste. The industry, DOE, the private citizen, and the consulting firm all generally supported the rulemaking, and some provided specific recommendations that the staff incorporated into the final rule. DOE also noted its concern that canisters of commingled GTCC waste and spent fuel may need to be opened by the waste owner or generator prior to disposal.

DISCUSSION:

Current NRC regulations are not clear on the acceptability of storing GTCC waste co-located (at the same location but in separate containers) with spent fuel at an ISFSI or a Monitored Retrievable Storage Installation (MRS). This situation has created confusion and uncertainty among decommissioning reactor licensees and may create inefficiency and inconsistency in the way NRC handles GTCC waste licensing matters.

The Low-Level Radioactive Waste Policy Amendments Act of 1985 gave the Federal Government (DOE) the primary responsibility for developing a national strategy for disposal of GTCC waste. The Act gave NRC the licensing responsibility for a disposal facility for GTCC waste. GTCC waste is not generally acceptable for near-surface disposal at licensed low-level waste (LLW) disposal facilities. There currently are no routine disposal options for GTCC waste.

In developing the rule, the staff was cognizant of both potential DOE disposal criteria for GTCC waste, to preclude allowing a storage option that is unacceptable for disposal, and potential adverse interactions between spent fuel and various types of GTCC waste. The staff believes that properly addressing potential adverse conditions from commingling spent fuel with certain types of GTCC waste presents significant safety and technical issues. In addition, because DOE has not yet identified criteria for a disposal package, the staff is concerned that storage of

GTCC waste and spent fuel in the same container may be unacceptable for placement in the geologic repository. Therefore, the rule precludes the commingling of GTCC waste and spent fuel, except on a case-by-case basis. Note that this in no way changes the current NRC and industry practice of allowing the commingling of spent fuel and certain specific components associated with, and integral to, spent fuel (e.g., burnable poison rod assemblies, control rod elements, and thimble plugs). In support of this rulemaking, the staff is developing Interim Staff Guidance for NRC staff and licensee use in utilizing Part 72 storage criteria for various GTCC waste types.

Currently, utilities store all types of radioactive materials under their 10 CFR Part 50 “Domestic Licensing of Production and Utilization Facilities” licenses, including material that, when finally disposed of, would be classified as GTCC waste. The GTCC waste is typically stored within the reactor vessel, in the spent fuel pool, or in a radioactive material storage area, pending development of a suitable permanent disposal facility.

Under current regulations, a reactor licensee seeking decommissioned status would need to apply for and be granted a specific Part 30 and/or a Part 70 license, to store GTCC waste, before termination of its Part 50 license. At present, Part 72 only provides for licensing the storage of spent fuel at an ISFSI and storage of spent fuel and solid high-level radioactive waste at an MRS. Nonetheless, a reactor licensee could elect to store GTCC waste in a facility co-located at an ISFSI site using a license(s) issued under Parts 30 and/or 70.

Under an alternative interpretation of NRC regulations - which this final rule rejects - storage of GTCC waste at an ISFSI (or an MRS) after termination of a reactor licensed under Part 50 could lead to a situation in which NRC regulates the spent fuel at an ISFSI while an Agreement State regulates GTCC waste at the same location. NRC has exclusive regulatory authority over a reactor licensee's storage of spent fuel and of GTCC waste during operations. Under the alternative interpretation since GTCC waste is considered a type of LLW, Agreement States would have licensing authority for any GTCC waste possessed by a utility when the Part 50 license is terminated. Thus, a reactor licensee would have to apply for and receive an Agreement State license (equivalent to an NRC Part 30 or 70 license), to store the GTCC waste, for NRC to terminate the Part 50 license.

The staff's current understanding of the industry's approach to reactor decommissioning indicates that many reactor licensees currently undergoing decommissioning, as well as those considering future plans for decommissioning, may or may not pursue early termination of their Part 50 license, for a variety of reasons. Consequently, with retention of the Part 50 license, licensees will also retain the Part 72 general license and their incorporated Parts 30/70 licenses (i.e., the authority to store reactor-related GTCC waste under the Part 50 license).

However, the staff believes that some licensees may wish to have the option of early termination of their Part 50 licenses (and thus Part 72 general licenses). In that case, this rule allows storage of reactor-related GTCC waste either under a Part 72 specific license or under Parts 30 and/or 70. The staff believes that storing reactor-related GTCC waste under a Part 72 specific license or under Parts 30 and 70 both provide an adequate level of protection of public health and safety. Accordingly, issuing the final rule would provide reactor licensees with flexibility in selecting a regulatory approach to storing reactor-related GTCC waste after termination of their Part 50 license.

This rule does not eliminate the current availability of storing GTCC waste under the authority of an NRC Part 30 or 70 license. Neither Parts 30 nor 70 include explicit criteria for storage of GTCC waste. Therefore, a licensing process conducted under these regulations would be more complicated and resource-intensive because the licensee would need to develop new proposed storage criteria, and NRC would then need to review and approve these criteria within the licensing process. The licensing process will be simpler with less regulatory burden if all the radioactive waste to be stored at an ISFSI or an MRS is stored under the authority of one Part 72 license. Part 72 was developed specifically for storage of spent fuel at an ISFSI and spent fuel and high-level waste at an MRS. Appropriate Part 72 criteria will be applied to GTCC waste storage. Also, using Part 72 to store reactor-related GTCC waste would eliminate the need for multiple licenses for the storage of spent fuel and GTCC waste.

The changes to Parts 30, 70, 72, and 150 are necessary to allow the storage of NRC-licensed reactor-related GTCC waste under a specific Part 72 license within an ISFSI or an MRS and to clarify that the licensing responsibility for this waste remains under Federal jurisdiction. Because GTCC waste at reactor facilities is under Federal jurisdiction during the operating life of the plant and the ultimate disposal of such GTCC waste is also under Federal jurisdiction, the period between termination of a reactor license and ultimate disposal should also remain under Federal jurisdiction. A regulatory scheme which allows for Federal jurisdiction, followed by State jurisdiction, followed again by Federal jurisdiction over the generation, interim storage, and disposal of GTCC waste, respectively, is an inefficient approach, in that NRC and an Agreement State would both spend resources licensing and inspecting an ISFSI that stores both spent fuel and GTCC waste. Therefore, for efficiency and consistency of licensing, Part 72 should be modified to allow storage of GTCC waste within these facilities exclusively under NRC's jurisdiction. Changes to Part 150 are needed to clarify that reactor-related GTCC waste, licensed under either Parts 30, 70, or 72, remain under Federal jurisdiction.

This final rule does not affect the strategic goal of protection of the public health and safety and the environment. This rule could achieve the strategic goals of reducing unnecessary regulatory burden on stakeholders and increasing effectiveness, efficiency, and realism. The rule would simplify and clarify the licensing process and reduce the potential burden on licensees, NRC, and Agreement States. No comments were received on the proposed rule from members of the public not associated with States or the nuclear industry.

AGREEMENT STATE ISSUES:

This rulemaking will change NRC's current policy regarding the regulation of a specific kind of LLW after termination of a Part 50 license. Under current interpretation, after termination of the Part 50 license, licensing the storage of all LLW, including GTCC waste, is the responsibility of an Agreement State, if the storage facility is located in an Agreement State. Under this rule, licensing the storage of reactor-related GTCC waste will be reserved to NRC, regardless of location. The Federal Register notice for the proposed rule specifically discussed this point and asked for Agreement State comments.

COORDINATION:

The Office of the General Counsel has no legal objection to this rulemaking. The Office of the Chief Financial Officer has reviewed this Commission Paper for resource implications and has no objections. The rule makes changes to the information collection requirements that will be approved by the Office of Management and Budget (OMB) before forwarding the rule to the Federal Register for publication.

RECOMMENDATIONS:

That the Commission:

1. Approve for publication, in the Federal Register, the amendments to Parts 30, 70, 72, and 150 on interim storage of GTCC waste (Attachment 1).

2. Certify that the final rule does not have a significant financial impact on a substantial number of small entities. This certification is included in the attached Federal Register notice.

3. Note:

   a. That the Chief Counsel for Advocacy of the Small Business Administration will be informed of the certification and the reasons for it, as required by the Regulatory Flexibility Act, 5 U.S.C. 605(b).

   b. That a final Regulatory Analysis has been prepared for this rulemaking (Attachment 2).

   c. That a final Environmental Assessment has been prepared for this rulemaking (Attachment 3).

   d. That the staff has determined that this is not a "major" rule, as defined in the Small Business Regulatory Enforcement Fairness Act of 1996, 5 U.S.C. 804(2), and has confirmed this determination with OMB. The appropriate Congressional and General Accounting Office contacts will be informed.

   e. That appropriate Congressional committees will be informed of this action.

f. That a press release will be issued by the Office of Public Affairs when the rulemaking is filed with the Office of the Federal Register.

g. OMB approval will be obtained before the rule is submitted to the Office of the Federal Register for publication.

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William D. Travers
Executive Director
for Operations

Attachments:
1. Federal Register notice
2. Regulatory Analysis
3. Environmental Assessment
4. Public Comments on the Proposed Rule

**[7590-01-P]**

**NUCLEAR REGULATORY COMMISSION**

**10 CFR Parts 30, 70, 72, and 150**

**[Docket No. PRM-72-2]**

**RIN 3150-AG33**

# Interim Storage for Greater Than Class C Waste

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Final rule.

**SUMMARY:** The Nuclear Regulatory Commission (NRC) is amending its regulations to allow licensing for the interim storage of Greater than Class C (GTCC) waste in a manner that is consistent with licensing the interim storage of spent fuel and will maintain Federal jurisdiction for storage of reactor-related GTCC waste. The final rule will only apply to the interim storage of GTCC waste generated or used by commercial nuclear power plants. These amendments will also simplify and clarify the licensing process. The final rule will grant in part and deny in part a petition for rulemaking submitted by Portland General Electric Company (PRM-72-2).

**EFFECTIVE DATE:** (30 days from date of publication in the FEDERAL REGISTER).

**FOR FURTHER INFORMATION CONTACT**: Mark Haisfield [telephone (301) 415-6196, e-mail MFH@nrc.gov] of the Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

**SUPPLEMENTARY INFORMATION:**

## BACKGROUND

### The Petition for Rulemaking

The Nuclear Regulatory Commission received a petition for rulemaking dated November 2, 1995, submitted by Portland General Electric Company. The petition was docketed as PRM-72-2 and published in the Federal Register, with a 75-day comment period, on February 1, 1996 (61 FR 3619).

The petitioner requested that the NRC amend 10 CFR Part 72 to add the authority to store radioactive waste that exceeds the concentration limits of radionuclides established for Class C waste in 10 CFR 61.55.[1] This radioactive material is commonly referred to as "Greater than Class C" waste or GTCC waste. GTCC waste is generally unsuitable for near-surface disposal as low-level waste (LLW), even though it is considered as LLW. Section 61.55(a)(2)(iv) requires that this type of waste be disposed of in a geologic repository unless approved for an alternative disposal method on a case-specific basis by the NRC.

The petitioner is an NRC-licensed utility responsible for the Trojan Nuclear Plant (Trojan). In the petition, the petitioner anticipated that it would need to dispose of GTCC waste during

[1] In 10 CFR Part 61.55, “Waste Classification,” the NRC codifies disposal requirements for three classes of low-level waste which are considered generally suitable for near-surface disposal. These are Class A, B, and C. Class C waste is required to meet the most rigorous disposal requirements.

decommissioning. The decommissioning plan discussed the transfer of spent reactor fuel being stored in the spent fuel pool, to an onsite Independent Spent Fuel Storage Installation (ISFSI) licensed under 10 CFR Part 72. The petitioner requested that 10 CFR Part 72 be revised to permit GTCC waste to be stored at the ISFSI pending transfer to a permanent disposal facility. The petitioner suggested that because the need to provide interim storage for GTCC waste is not specific to Trojan, but is generic, the regulations in 10 CFR Part 72 should be amended to explicitly provide for storage of GTCC waste in a licensed ISFSI.[2]

The petitioner stated that storage of GTCC waste under 10 CFR Part 72 would ensure safe interim storage. This storage would provide for public health and safety and environmental protection as required for spent fuel located at an ISFSI or spent fuel and high-level waste stored at a Monitored Retrievable Storage Installation (MRS).

The specific changes proposed in the petition would explicitly include interim storage of GTCC waste within the Purpose, Scope, and Definitions sections of 10 CFR Part 72 in order to treat GTCC waste in a manner similar to that for spent nuclear fuel. The revised definitions would only apply to the interim storage of GTCC waste under the authority of 10 CFR Part 72.

With this final rule, the petition is granted in part and denied in part. This rule will grant the petitioner's request to authorize GTCC waste storage under a 10 CFR Part 72 license, but as discussed later, uses a different approach.

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[2] Although granting the petition in this rulemaking is no longer needed for Trojan, since its reactor vessel with internals (package), was shipped to the Hanford LLW site after the State of Washington defined this package as Class C waste, the NRC has concluded that this rulemaking will be useful for other reactor operators that need to store their GTCC waste.

## Public Comments on the Petition

The notice of receipt of the petition for rulemaking invited interested persons to submit written comments concerning the petition. The NRC received six comment letters. Five comment letters were received from nuclear facilities and one from the Nuclear Energy Institute (NEI). NEI provided another letter on this subject directly to the NRC Chairman on February 2, 1999, and the NRC responded on March 25, 1999. The comments were reviewed and considered in the development of NRC's decision on this petition. These comments are available in the NRC Public Document Room.

All six commenters supported the petition. Two of the commenters (Sacramento Municipal Utility District and Yankee Atomic Electric Company) are currently decommissioning their reactors.

## Draft Rulemaking Plan

As a result of the petition and the comment letters, the NRC developed a draft rulemaking plan to further consider the development of a rule that would meet the intent of the petition. In SECY-97-056, dated March 5, 1997, the NRC staff provided a draft rulemaking plan to the Commission outlining a rule that would modify 10 CFR Part 72 to allow storage of material, which when disposed of would be classified as GTCC waste, under the authority of 10 CFR Part 72 using the performance criteria of this part. As discussed in this draft rulemaking plan, licensees are currently authorized to store GTCC waste under the regulations in 10 CFR Part 30 and/or Part 70. Therefore, the draft rulemaking plan discussed adding an option to store GTCC waste under 10 CFR Part 72 while maintaining the existing option to store this waste using the

authority of 10 CFR Parts 30 and 70. This plan was sent to the Agreement States for their comments on April 18, 1997. Five States provided comments -- Illinois, Maine, New York, Texas, and Utah.

The draft rulemaking plan described how an ISFSI or an MRS might be regulated by both the NRC and an Agreement State (this is discussed in more detail in the Discussion section). The draft rulemaking plan did not require that the licensing jurisdiction for GTCC waste remain with NRC, but did suggest that Agreement States could voluntarily relinquish their licensing authority for GTCC waste stored at an ISFSI. The draft rulemaking plan specifically requested Agreement State input relative to their likelihood of voluntarily relinquishing their authority for licensing when an ISFSI or an MRS is used for storing GTCC waste.

One State supported the concept. Three States indicated that they were opposed to voluntarily relinquishing their authority and preferred to maintain their licensing authority for GTCC waste. One questioned that inefficiencies would result from Agreement State jurisdiction over GTCC waste at a reactor site concurrent with NRC regulation of spent fuel remaining at the site. The commenter noted that similar situations already exist when LLW is stored at the site. A second noted that there "... have been many instances where an agreement state and NRC have effectively collaborated in the regulation of a single facility." A third noted that the NRC recently informed the States that they could voluntarily relinquish their authority for sealed sources and devices and that it was "...vehemently opposed to any rule that automatically usurps a State's licensing authority without the State's consent."

## Proposed Rule

The NRC published the proposed rule, "Interim Storage for Greater than Class C Waste" in the Federal Register on June 16, 2000 (65 FR 37712). The NRC received 18 comment letters on the proposed rule. These comments and responses are discussed in the "Comments on the Proposed Rule" section.

## Discussion

Current NRC regulations are not clear on the acceptability of storing reactor-related GTCC waste co-located at an ISFSI or an MRS. Co-location is the storage of spent fuel with other radioactive material in their respective separate containers. This situation has created confusion and uncertainty on the part of decommissioning reactor licensees and may create inefficiency and inconsistency in the way the NRC handles GTCC waste licensing matters.

The NRC believes that decommissioning activities at commercial nuclear power plants will generate relatively small volumes of GTCC waste relative to the amount of spent fuel that exists at these sites. GTCC waste exceeds the concentration limits of radionuclides established for Class C in §§ 61.55(a)(3)(ii), 61.55(a)(4)(iii), or 61.55(a)(5)(ii). GTCC waste is not generally acceptable for near-surface disposal at licensed low-level radioactive waste disposal facilities. Currently there are no routine disposal options for GTCC waste.

In general, reactor-related GTCC wastes can be grouped into two categories. The first, which is the more typical form, is activated metals components from nuclear reactors such as core shrouds, support plates, nozzles, core barrels, and in-core instrumentation. The second is process wastes such as filters and resins resulting from the operation and decommissioning of

reactors. In addition, there may be a small amount of GTCC waste generated from other activities associated with the reactor's operation (e.g., reactor start-up sources). GTCC waste may consist of either byproduct material or special nuclear material.

The Low-Level Radioactive Waste Policy Amendments Act of 1985 gave the Federal Government (U.S. Department of Energy (DOE)) the primary responsibility for developing a national strategy for disposal of GTCC waste. The Act also gave the NRC the licensing responsibility for a disposal facility for GTCC waste. Until a disposal facility is licensed, there is a need for interim storage of GTCC waste.

Currently, 10 CFR Part 50 licensees (Domestic Licensing of Production and Utilization Facilities) are authorized to store all types of reactor-related radioactive materials, including material that, when disposed of, would be classified as GTCC waste. The GTCC waste portion is currently being stored either within the reactor vessel, in the spent fuel pool, or in a radioactive material storage area, pending development of a suitable permanent disposal facility.

The authority to license the possession and storage of GTCC waste is contained within 10 CFR Part 30 for byproduct material and in 10 CFR Part 70 for special nuclear material. Under 10 CFR 50.52, the Commission may combine multiple licensing activities of an applicant that would otherwise be licensed individually in single licenses. Thus, the 10 CFR Part 50 license authorizing operation of production and utilization facilities currently includes, within it, the authorization to possess byproduct and special nuclear material that would otherwise need to be separately licensed under 10 CFR Parts 30 or 70.

Under the current regulations, before the 10 CFR Part 50 licensee can terminate its 10 CFR Part 50 license, one of the actions that must be completed is for the licensee to transfer all of its spent fuel to another licensed facility; typically an ISFSI for storage or to a geologic repository for disposal. The ISFSI can be either at the reactor site under a specific 10 CFR

Part 72 license, or at an away-from-reactor site. The general license issued under 10 CFR 72.210 would terminate when the 10 CFR Part 50 license is terminated. Because the 10 CFR Part 72 general license would be terminated coincident with the termination of the 10 CFR Part 50 reactor license, the licensee must have a 10 CFR Part 72 specific license in order to continue to store spent fuel in an ISFSI located at the reactor site. Under a 10 CFR Part 50 license, a reactor licensee undergoing decommissioning can store GTCC waste at its site based on the authority of the 10 CFR Parts 30 and 70 license conferred to reactor licensees. However, the 10 CFR Parts 30 and 70 licenses incorporated within the 10 CFR Part 50 license are also terminated when the 10 CFR Part 50 license is terminated. Consequently, termination of the 10 CFR Part 50 license would require the licensee to either obtain a 10 CFR Part 30 or 70 license to store any reactor-related GTCC waste, or transfer the GTCC waste to a geologic repository for disposal.

The NRC's current understanding of industry's approach to reactor decommissioning indicates that many reactor licensees currently undergoing decommissioning, as well as those considering future plans for decommissioning, may or may not pursue early termination of their 10 CFR Part 50 license, for a variety of reasons. Consequently, with retention of the 10 CFR Part 50 license, licensees also will retain the 10 CFR Part 72 general license and their incorporated 10 CFR Parts 30 and 70 licenses (i.e., the authority to store reactor-related GTCC waste under the 10 CFR Part 50 license). However, the NRC believes that some licensees may wish to have the option of early termination of their 10 CFR Part 50 license (and thus 10 CFR Part 72 general license). In that case, the issue of storage of reactor-related GTCC waste under a 10 CFR Part 72 specific license which was identified in the proposed rule is still valid. The NRC continues to believe that storing reactor related GTCC waste either under a 10 CFR Part 50 license or under a 10 CFR Part 72 specific license provides an adequate level of protection of

public health and safety. Accordingly, the NRC is issuing this final rule to provide reactor licensees with flexibility in selecting a regulatory approach to storing reactor-related GTCC waste. This final rule maintains Federal jurisdiction over reactor-related GTCC waste under either approach.

The changes in this rulemaking will allow 10 CFR Part 72 specific licensees to co-locate reactor-related GTCC waste within an ISFSI or an MRS. Applicants for a specific license to store reactor-related GTCC waste will be required to provide a Safety Analysis Report (SAR) describing their programs that will (1) ensure that adequate protective measures are in place to ensure safe storage within the ISFSI or MRS, and (2) ensure that the co-location of this radioactive material will not have an adverse effect on the safe storage of spent fuel and the operation of the ISFSI or MRS. Safe storage of GTCC waste will be governed by the provisions of 10 CFR Parts 20 and 72 and applicable guidance that is being developed in conjunction with this rule. Based on an acceptable review of the SAR, the NRC would issue a 10 CFR Part 72 specific license. Current 10 CFR Part 72 specific license holders would be required to submit a similar application to amend their 10 CFR Part 72 licenses if they desire to store GTCC waste at their ISFSIs.

In developing the rule, the NRC was cognizant of both potential DOE disposal criteria for GTCC waste (to preclude allowing a storage option that is unacceptable for disposal) and potential adverse interactions between spent fuel and various types of GTCC waste. The NRC believes that properly addressing potential adverse conditions from commingling spent fuel with certain types of GTCC waste presents significant safety and technical issues. In addition, because the DOE has not yet identified criteria for a disposal package, the NRC is concerned that storage of GTCC waste and spent fuel in the same container may be unacceptable for placement in the geologic repository. Therefore, the rule precludes the commingling of GTCC

waste and spent fuel, except on a case-by-case basis, because the NRC desires to formulate regulations that both reduce radiological exposure and costs associated with repackaging the spent fuel and GTCC waste into two separate containers for disposal. Note that this in no way changes the current NRC and industry practice of allowing the commingling of spent fuel and certain specific components associated with, and integral to, spent fuel (e.g., burnable poison rod assemblies, control rod elements, and thimble plugs). See the responses to comments 3 and 10 in the Comments on the Proposed Rule section for more specific information. In support of this rulemaking, the NRC is developing Interim Staff Guidance for NRC staff and licensee use in utilizing 10 CFR Part 72 storage criteria for various GTCC waste types.

This rule also precludes storage of liquid GTCC waste under 10 CFR Part 72. However, there are alternatives for a 10 CFR Part 50 licensee that desires to terminate its license yet still possesses liquid GTCC waste. These alternatives include the licensee's submission of an application for a 10 CFR Part 30 or 70 license, with the appropriate conditions for storage of liquid GTCC waste.

## Request for Public Input on Specific Issues

The Commission sought input from stakeholders on various technical topics associated with the storage of GTCC waste. The stakeholders input and NRC’s responses are contained in the Comments on the Proposed Rule section. The Commission considered these comments in the development of the final rule.

## Regulatory Action

The NRC is amending 10 CFR Parts 30, 70, 72, and 150. The changes to these parts are necessary to allow the interim storage of NRC-licensed reactor-related GTCC waste within an ISFSI or an MRS and to require that the licensing responsibility for this waste remain under Federal jurisdiction. This action deals only with GTCC waste used or generated by a commercial power reactor licensed under 10 CFR Part 50 (i.e., not a research reactor) and does not include any other sources of GTCC waste, nor does it include other forms of LLW generated under a 10 CFR Part 50 license. Because reactor-related GTCC waste is initially under Federal jurisdiction while the reactor facility is operated and the ultimate disposal of GTCC waste also is under Federal jurisdiction, the NRC believes that the interim period between termination of a reactor license and ultimate disposal also should remain under Federal jurisdiction. GTCC waste could become eligible for disposal in a geologic repository in the future. Spent fuel can be stored in an ISFSI or an MRS pending ultimate disposal. This Federal jurisdiction is unlike the Federal or Agreement State jurisdiction for the storage of Class A, B, and C reactor-related LLW that are currently being disposed in LLW disposal sites regulated by Agreement States. In addition, the storage time for Class A, B, and C LLW is expected to be short in comparison to the relatively long-term interim storage of GTCC waste. Therefore, for efficiency and consistency of licensing, the NRC concludes that 10 CFR Part 72 should also be modified to allow the storage of GTCC waste within these facilities under NRC's jurisdiction. A regulatory scheme which would allow for Federal jurisdiction over the generation of the GTCC waste, followed by State jurisdiction for interim storage, followed again by Federal jurisdiction over the disposal of GTCC waste, is an inefficient approach. It is inefficient for NRC and an

Agreement State to both spend scarce resources to license and inspect an ISFSI that stores both spent fuel and GTCC waste. 10 CFR Parts 30, 70, and 150 require conforming changes.

In the section, "NRC to Maintain Authority for Reactor-Related GTCC Waste," the Commission provides the regulatory basis upon which the NRC has determined that jurisdiction for storage of reactor-related GTCC waste will remain with the NRC. (Also see comment number 15.)

This final rule will allow storage of reactor-related GTCC waste under a 10 CFR Part 72 specific license. The changes will modify 10 CFR Part 72 to allow storage of GTCC waste under this part using the appropriate criteria of 10 CFR Part 72. This will provide a more efficient means of implementing what is essentially already permitted by the regulations (storage of GTCC waste co-located at an ISFSI or an MRS). When storing GTCC waste within an ISFSI or MRS, the licensee or applicant must provide a description of its program that ensures the storage of the GTCC waste will not have an adverse effect on the ISFSI or MRS or on public health and safety and the environment.

The rule will not eliminate the current availability of storing GTCC waste under the authority of a 10 CFR Part 30 or 70 license. However, neither 10 CFR Parts 30 nor 70 include explicit criteria for storage of GTCC waste. Therefore, a licensing process conducted under 10 CFR Parts 30 or 70 regulations would be more resource intensive because the licensee would need to develop new proposed storage criteria. If the licensee decides to obtain a 10 CFR Part 30 or 70 license, the NRC will still maintain Federal jurisdiction over the reactor-related GTCC waste stored under 10 CFR Parts 30 and 70.

Comparing these two approaches, the NRC recognizes that the licensing process will be simpler with less regulatory burden if all the radioactive waste to be stored at an ISFSI or MRS is stored under the authority of one 10 CFR Part 72 license. The regulations in 10 CFR Part 72

were developed specifically for storage of spent fuel at an ISFSI and spent fuel and high-level waste at an MRS. Appropriate 10 CFR Part 72 criteria will be applied to GTCC waste storage. Under 10 CFR Parts 30 and 70, GTCC waste criteria would need to be developed on a case-by-case basis to support licensing under these parts. Also, using 10 CFR Part 72 to store reactor-related GTCC waste would eliminate the need for multiple licenses for the storage of spent fuel and GTCC waste.

The NRC has evaluated the technical issues arising from the commingling of spent fuel and reactor-related GTCC waste in the same storage container, and issues arising from the storage of reactor-related liquid GTCC waste, under a 10 CFR Part 72 specific license. This final rule will permit the co-locating of spent fuel and solid reactor-related GTCC waste in different casks and containers within an ISFSI or MRS. However, the rule will not permit the commingling of spent fuel and GTCC waste in the same storage cask except on a case by case basis. The rule does not change the current practice of storing specific components associated with, and integral to, the spent fuel with spent fuel. Additionally, the rule will not permit the storage of liquid reactor-related GTCC waste.

Without this change, prior to termination of the 10 CFR Part 50 license, a licensee would need to obtain multiple licenses to continue to store spent fuel and GTCC waste -- 10 CFR Part 72 for spent fuel and 10 CFR Part 30 or 70 (or both) for GTCC waste. Having one license for the ISFSI (or MRS) under 10 CFR Part 72 will be simpler for both licensees and the NRC, relative to approval and management.

The NRC believes that the concept proposed in the petition of storing GTCC waste under the provisions of 10 CFR Part 72 is valid. However, the NRC also concludes that the method proposed by the petitioner, that is modifying the definition of spent fuel to include GTCC waste, could lead to confusion and inefficiency. If GTCC waste is defined as spent fuel, DOE would be

required to dispose of this waste in a deep geologic repository and would not have the flexibility to explore potentially more efficient disposal plans. The proposal could also require that GTCC waste use limited disposal space meant for wastes that require more stringent confinement.

Therefore, the NRC is adding a definition of GTCC waste within § 72.3 that will be consistent with 10 CFR 61.55. The NRC has evaluated 10 CFR Part 72 to determine which sections need to be modified to accommodate storage of separate containers of solid GTCC waste co-located with spent fuel within an ISFSI or an MRS. The majority of the changes to 10 CFR Part 72 will simply add the term "GTCC waste" to the appropriate sections and paragraphs (typically immediately after the terms "spent fuel" or "high-level waste"). In support of this rulemaking, the NRC is developing Interim Staff Guidance for NRC staff and licensee use in utilizing 10 CFR Part 72 storage criteria for various GTCC waste types.

The regulations in 10 CFR Part 150 are being modified to be consistent with the changes in 10 CFR Part 72. The change to 10 CFR Part 150 (Exemptions and Continued Regulatory Authority in Agreement States and in Offshore Waters Under Section 274) will specify that any GTCC waste stored in an ISFSI or an MRS is under NRC jurisdiction. 10 CFR Part 150 also is being modified to indicate that licensing the storage of any GTCC waste that originates in, or is used by, a facility licensed under 10 CFR Part 50 (a production or utilization facility) is the responsibility of the NRC.

The NRC has made changes to the final rule based on public comments (see the Response to Public Comments section) and has also determined that sections within 10 CFR Part 72 (not based on public comments) also needed to be removed or modified.

A public comment resulted in the recognition of the need to modify 10 CFR Parts 30 and 70 to provide exceptions to the requirements in these parts when the GTCC waste is being stored under the provisions of 10 CFR Part 72. Without these changes, licensees would need

10 CFR Part(s) 30 and/or 70 licenses in addition to the 10 CFR Part 72 license. Other comments resulted in the preamble and § 72.120 being clarified regarding commingling of material that is associated with spent fuel assemblies.

In addition, during the review of comments, NRC staff identified the need for several necessary clarifications in the final rule that are not specifically based on public comments. The clarifying changes that NRC made are: a clarification to § 72.2(a) regarding power reactor-related GTCC waste to clarify that GTCC waste does not have to be stored in a complex that is designed and constructed specifically for storage of spent fuel, the change in the proposed rule to the definition in § 72.3 of “spent fuel cask or cask” is being withdrawn to eliminate an unnecessary storage requirement, § 72.6 is being revised to clearly indicate that reactor-related GTCC waste, if stored under 10 CFR Part 72, can only be stored under the provisions of a 10 CFR Part 72 specific license, the proposed rule added § 72.24(r), however, the final rule is removing this addition to be more consistent with 10 CFR Part 50's handling of radioactive material, § 72.40(b) is being revised from the proposed rule to the final rule because the proposed rule inadvertently removed existing text instead of adding a new introductory sentence and reference to the Atomic Safety and Licensing Appeal Board has been removed since this board no longer exists, and modification of §§ 72.72, 72.76, and 72.78 to clarify the reporting requirements for special nuclear material as specified in 10 CFR 74.13(a)(1).

In a previous final rulemaking, "Clarification and Addition of Flexibility" (65 FR 50606; August 21, 2000), changes were made to 10 CFR Part 72. Section 72.140(c)(2) is the only section that is changed in both the previous and current rulemaking. The changes to this section in the current rulemaking are consistent with the “Clarification” rulemaking changes.

The NRC will continue to recover costs for generic activities related to the storage of GTCC waste under 10 CFR Part 72 by means of annual fees assessed to the spent fuel

storage/reactor decommissioning class of licensees under 10 CFR Part 171. Subsequent to issuing the final revision to 10 CFR Part 72, 10 CFR Part 170 will be amended to clarify that full cost fees will be assessed for amendments and inspections related to the storage of GTCC waste under 10 CFR Part 72.

NRC to Maintain Authority for Reactor-Related GTCC Waste

Under section 274 of the Atomic Energy Act of 1954 (AEA), Agreement States possess regulatory authority over radioactive waste only where the Commission has relinquished its pre-existing authority. Section 274 agreements cannot be understood as a general matter to relinquish Commission authority over reactor-related GTCC waste. These wastes are too integrally related to the operation of reactors, since these wastes consist for the most part of activated metal reactor components such as core shrouds, support plates, nozzles, core barrels, and in-core instrumentation. When, under the section 274 program, the Commission reaches agreements with States and relinquishes regulatory jurisdiction to them, the Commission specifically retains authority over the "operation" of reactors, as required by an NRC rule promulgated nearly 40 years ago. See 10 CFR 150.15(a)(1). That rule defines "operation" as follows:

> As used in this subparagraph, operation of a facility includes, *but is not limited to* (i) the storage and handling of radioactive wastes at the facility site by the person licensed to operate the facility; and (ii) the discharge of radioactive effluents from the facility site.

Id. (Emphasis added).

In short, under longstanding agency rules, a State entering a section 274 Agreement with the NRC does not (and cannot) acquire regulatory authority over reactor-related GTCC waste.

Contrary to the view of a commenting State, therefore, issuance of a final rule asserting ongoing NRC jurisdiction over reactor-related GTCC waste does not take back previously-granted State authority or terminate an NRC-State agreement without abiding by the process set out in section 274(j) of the AEA. Certainly, nothing in the AEA, in NRC rules, or in NRC agreements with any of the commenting States even mentions reactor-related GTCC waste, let alone discontinues NRC jurisdiction over it. Hence, the Commission's decision in this rulemaking to exercise ongoing jurisdiction over this form of waste does not violate any provision of law.

Specifically, with regard to the storage of reactor-related GTCC waste, the NRC will continue Federal authority over the GTCC waste after termination of the 10 CFR Part 50 license. Thus, under the option of obtaining 10 CFR Part 30 and/or 70 licenses, the GTCC waste will remain under Federal authority. If the option of obtaining a specific license under 10 CFR Part 72 is chosen, the GTCC waste will also remain under Federal authority. This licensing authority will be irrespective of the physical location of the storage facility (either on or off the originating reactor site).

However, this rule does not affect the States' long-standing practice of exercising regulatory jurisdiction over ordinary low-level radioactive waste originally generated at reactors, or over GTCC waste generated by materials licensees regulated by Agreement States. However, under 10 CFR 72.128(b), any LLW generated by the ISFSI (or an MRS) must be treated and stored onsite awaiting transfer to a disposal site. The licensing authority for treatment and storage of ISFSI or MRS generated LLW would be under 10 CFR Part 72, and therefore, reserved to the NRC.

For a more detailed discussion of jurisdictional issues, please see the responses to comments 15, 16, and 17.

## Comments on the Proposed Rule

This analysis presents a summary of the comments received on the proposed rule, the NRC's response to the comments, and changes made to the final rule as a result of these comments.

The NRC received 18 comment letters. Five were from Agreement States (South Carolina, Illinois, Utah, New York, and Maine), ten from industry (including the Portland General Electric Company, the petitioner, and the Nuclear Energy Institute), one from the Department of Energy (DOE), one from a private citizen, and one from a consulting firm.

In general, none of the commenters were opposed to the idea of storing reactor-related GTCC waste in an Independent Spent Fuel Storage Installation licensed under the provisions of 10 CFR Part 72. However, four of the Agreement State commenters were opposed to restricting the licensing authority solely to the NRC and believe that NRC is not correctly interpreting the Atomic Energy Act. Utah is opposed to applying NRC sole jurisdiction to "away-from- reactor ISFSIs" since the State believes it could likely end up with GTCC waste indefinitely stored within its borders with no disposal option. South Carolina and New York believe the NRC and the State can effectively collaborate in the regulation of a single facility. Maine believes the rulemaking should be reconsidered because it is not advisable to allow the commingling of spent fuel and GTCC waste. The industry, DOE, the private citizen, and the consulting firm all generally supported the rulemaking and some provided specific recommendations to improve the final rule.

The NRC, in the proposed rule, invited comments on (1) six specific topics dealing with safety, technical or licensing issues for the storage of GTCC waste and (2) three specific questions for Agreement State consideration. The comments on the proposed rule are generally

contained within four categories. The first category contains general comments, followed by comments on commingling GTCC waste and spent fuel (these are mostly the comments identified in number 1 above), followed by State issues (these are mostly the comments identified in number 2 above), and then other comments.

A. General comments on the proposed rule:

1. Support of the proposed rule (or support of the comments submitted by the Nuclear Energy Institute (NEI)).

Comment: Thirteen of the 18 commenters provided specific comments in support of the concept of the proposed rule to store GTCC waste in an ISFSI. One of the supportive commenters was NEI, representing the industry, and three commenters also endorsed NEI's comments. As an example, one commenter noted that they have been actively involved with NEI on this issue and fully endorse NEI's comments on behalf of the industry. The commenter specifically agreed with NRC's proposal to retain regulatory authority over GTCC waste during the interim period between reactor shutdown and prior to disposal. The commenter notes that there is no benefit to public safety and there is only a burden placed upon public resources to have regulatory authority shift to State authorities during this time.

Another industry commenter stated that it supports NRC's proposed rulemaking and encourages the NRC to continue the development of a rule which is prudent, practical, reasonable and consistent to assure that the interim storage for GTCC waste is fair and equitable to all involved stakeholders. The commenter notes that the proposed rulemaking will: (1) clarify NRC's handling of GTCC licensing, (2) be simpler, (3) result in less regulatory burden on licensees, (4) continue to consider the need to protect public health and safety, and (5) allow

these waste streams to be stored in an ISFSI or an MRS under the authority of one 10 CFR Part 72 license.

Response: The NRC is not making any changes to the final rule that the NRC believes would negate the industry's general support for this rulemaking.

2. Flexibility.

Comment: An industry commenter believes that flexibility to manage GTCC waste using other methods than 10 CFR Part 72 is in the best interest of public safety. The commenter notes that GTCC waste has been approved, on a case-by-case basis, for disposal at licensed LLW disposal facilities and believes this practice should be allowed to continue.

Response: This rulemaking concerns only the storage of GTCC waste. However, see the response to comment numbers 15 and 17 for additional information regarding GTCC waste disposal.

3. Definition of spent fuel and GTCC waste.

Comment: Two industry commenters believe the definition of GTCC waste should be changed. One commenter believes it should be defined as spent fuel, as recommended in the petition, and the other believes it should be defined as high-level waste. In either case, the commenters believe this would simplify disposal.

Three commenters, including DOE and NEI, note that the definition of spent fuel includes the special nuclear material, byproduct material, source material, and other radioactive materials associated with fuel assemblies (i.e., the non-fuel components associated with those fuel assemblies). See 10 CFR 72.3. Non-fuel components may be included as part of the spent fuel delivered for disposal under the "Standard Contract for Disposal of Spent Nuclear Fuel and/or

High-Level Radioactive Waste." See 10 CFR 961.11, Appendix E, B.2. The Standard Contract includes as non-fuel components, but is not limited to: control spiders, burnable poison rod assemblies, control rod elements, thimble plugs, fission chambers, primary and secondary neutron sources that are contained within the fuel assembly, BWR channels that are an integral part of the fuel assembly which do not require special handling. These same non-fuel components will ultimately be disposed of in the Federal repository in accordance with the Standard Contract. The commenters believe that the proposed rule is unclear in that the commenters believe that these non-fuel components are included within NRC's category of reactor-related GTCC. The commenters believe that reactor-related GTCC waste should be limited to items such as reactor internals, filters, and resins.

The commenters further state that the rule should clearly state that a licensing basis is being proposed for storage of both categories of material, spent fuel associated material and reactor-related GTCC waste in an ISFSI or an MRS under Federal jurisdiction. The commenters believe that without this clarification the rule could be misinterpreted to impose new requirements for licensees to demonstrate that non-fuel components also meet the radiological classification of GTCC waste as a condition of storage.

Response: The NRC believes, at this time, that defining all GTCC waste as spent fuel or high-level waste for use in 10 CFR Part 72 could lead to confusion and inefficiency. If GTCC waste is defined as spent fuel or high-level waste, DOE would be required to dispose of this waste in a deep geologic repository (e.g., Yucca Mountain) and would not have the flexibility to explore potentially more efficient disposal plans. This definition could also require that GTCC waste use limited disposal space meant for wastes that require more stringent confinement.

The commenters noting that the definition of spent fuel in 10 CFR 72.3 includes associated materials are correct. The NRC never intended to classify this material as GTCC

waste. The proposed rule did not make it clear that, if this material were separated from the spent fuel, some of it might be GTCC waste. However, it is not GTCC waste when it is placed within the cask because it is associated with fuel assemblies. The NRC currently allows the storage of this material with spent fuel and this rulemaking will not make any change to this practice.

Accordingly, the final rule is modified as follows: The NRC has clarified that the material associated with spent fuel assemblies is not GTCC waste and currently can and will continue to be allowed to be stored with spent fuel. The clarifications are being made within the preamble and §§ 72.120(b), (c), and (e) have been modified to clarify what can and cannot be stored with spent fuel. In addition, the NRC is developing Interim Staff Guidance that will provide additional information for the NRC staff and licensees in determining which materials are associated with spent fuel.

4. Proposed rule is premature.

Comment: A State commenter believes that the rulemaking is premature and not within the spirit or letter of the Administrative Procedure Act because the proposed rule contains no separate design criteria for GTCC waste storage containers and expects the applicant to ensure that the co-location of GTCC waste does not adversely affect the safe storage of spent fuel and the operation of the ISFSI. The proposed rule solicits input on a number of issues on what can be stored, commingling, and performance criteria. Therefore, the commenter believes that the proposed rule is still in the beginning stages as there are significant decisions relating to technical, safety, and performance criteria yet to be made. The NRC should be soliciting comments on an explicit proposal. The commenter also believes that the NRC is seeking a way

to make it financially more attractive for utilities to store GTCC waste after decommissioning and, in part, to solicit information from DOE on its GTCC disposal policies.

Response: The Commission does not believe this rulemaking to be “premature and not within the spirit or the letter of the Administrative Procedure Act." The proposed rule provided a complete regulatory proposal and the Commission intended this to be the basis for the final rule. The questions asked in the proposed rule were added to fine tune the proposal. We have received and reviewed all comments and thus have gained the additional information needed to do the fine tuning for the proposal. Through this process, the public has had an adequate opportunity to respond.

Based on public comments, the Commission has developed the final rule which is quite similar to the proposed rule. Changes made within the final rule clarify and correct inadvertent errors within the proposed rule, but do not make any fundamental changes in how the NRC proposed to license the storage of reactor-related GTCC waste in the proposed rule. The final rule addresses and responds to the issues raised by the commenters. The Commission does not anticipate any further rulemaking on the storage of reactor-related GTCC waste unless; (1) based on discussions with DOE and others, changes to the definition of GTCC waste are made, or (2) DOE develops disposal criteria for GTCC waste that would require corresponding changes.

5. General license versus specific license.

Comment: An industry commenter believes the wording in 10 CFR 72.40(b) must be revised. As written, the application to convert a general license to a specific license for an

existing ISFSI would be denied. As proposed, it would deny a license if construction on the facility begins before a finding approving issuance of the license with any appropriate conditions to protect environmental values. The ISFSI licensed under 10 CFR 72.210, a general license, is very likely to have been designed, constructed, and operated for years prior to the need to apply for a specific license. The commenter also believes the rule should clearly indicate which sections apply to a general license and which do not. The rule should provide for the storage of GTCC waste at an ISFSI for both general and specific licenses until the 10 CFR Part 50 license terminates.

Response: This rulemaking relates to authorizing a 10 CFR Part 72 specific license holder, or applicant for a license, to store reactor-related GTCC waste in an ISFSI or an MRS. The comments on transitioning from a 10 CFR Part 72 general license to a 10 CFR Part 72 specific license are beyond the scope of this rulemaking. With regard to the commenter's request to indicate clearly which sections of 10 CFR Part 72 apply to general licensees and which apply to specific licensees, the NRC previously addressed this issue by adding a new § 72.13 to 10 CFR Part 72, in a final rule titled "Clarification and Addition of Flexibility" (65 FR 50606; August 21, 2000).

The NRC disagrees with the commenter's suggestion to provide for the storage of GTCC waste under both 10 CFR Part 72 general and specific licenses. As indicated in the proposed rule, because a 10 CFR Part 72 general license is granted to a person holding a 10 CFR Part 50 license to possess or operate a power reactor and a 10 CFR Part 50 licensee would already be authorized (see § 50.52) to possess radioactive material (including GTCC waste), the NRC believes there is no need for additional authority to possess and store reactor-related GTCC waste under the general license provisions of 10 CFR Part 72. (See also response below).

NOTE: In evaluating this comment, the NRC determined that portions of § 72.40(b) were inadvertently omitted from the proposed rule. The text contained in the proposed rule was intended to be added to § 72.40(b) instead of to replace this paragraph. Accordingly, the final rule is modified to contain the existing text with the modification from the proposed rule.

6. General license.

Comment: A consulting firm commented that the changes to 10 CFR 72.6 extend the general license authorization for spent fuel in an ISFSI to include reactor-related GTCC waste. Reference is made to Subpart K, however, for clarity the proposed rule should include: (1) GTCC waste in the title of Subpart K, (2) the authorization for reactor-related GTCC waste in 10 CFR 72.210, (3) reactor-related GTCC waste in 10 CFR 72.212(a)(1) and (a)(2), (4) reactor-related GTCC waste in 10 CFR 72.212(b)(5)(ii), and (5) the authorization for reactor-related GTCC waste in 10 CFR 72.230(b).

Response: The NRC agrees with the commenter that § 72.6 of the proposed rule could be read as allowing the storage of reactor-related GTCC waste at an ISFSI under a general license. This was done inadvertently and was inconsistent with the overall intent of the proposed rule. Therefore, the NRC has revised § 72.6 to indicate clearly that reactor-related GTCC waste only can be stored under the provisions of a specific license.[3]

7. Question from the proposed rule: If reactor licensees, after termination of their 10 CFR Part 50 license, elect to store reactor-related GTCC waste under the provisions of 10 CFR Parts 30/70, is additional guidance needed to provide a more efficient licensing process?

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[3] Not impacted by this rulemaking - 10 CFR Parts 30 and 70 do permit the storage of reactor-related GTCC waste.

Comment: One State commenter believes that the same technical criteria should be developed and applied to storage of GTCC waste regardless of which licensing option a licensee selects.

Of six industry commenters, some believe that additional guidance is needed while others do not believe additional guidance is needed. One commenter believes the NRC should spend its resources on legislative and regulatory changes that eliminate dual regulation and set one standard protecting public health and safety. Another commenter believes additional guidance should be provided regarding the steps to obtain a 10 CFR Parts 30/70 license prior to termination of a 10 CFR Part 50 license. The guidance should be simple and include consideration of facility history, design, experience, and backfit costs of upgrading to newer regulations as a result of transfer to 10 CFR Parts 30/70 licenses.

Response: The NRC does not believe that additional guidance specifically for 10 CFR Parts 30/70 licenses are needed. However, if the NRC were to develop guidance for storage of reactor-related GTCC waste under a 10 CFR Part 30 or 70 license, such guidance would be consistent with 10 CFR Part 72. The NRC prefers that reactor-related GTCC waste be stored under the provisions of 10 CFR Part 72. Therefore, to promote effectiveness and efficiency the NRC is deferring development of any guidance for 10 CFR Parts 30 and 70. However, any application for a 10 CFR Part 30 or 70 license may use, to the extent appropriate (considering the case-by-case criteria the application would be proposing), the guidance developed for 10 CFR Part 72 in submission of an application. In conjunction with this rule NRC staff is developing Interim Staff Guidance for storage of reactor-related GTCC waste under a 10 CFR Part 72 specific license.

8. Standard Review Plan revisions.

Comment: An industry commenter believes that associated changes to the Standard Review Plan to clarify the regulations after their issuance should be given high priority.

Response: In support of this rulemaking, the NRC is developing Interim Staff Guidance for NRC staff and licensee use in utilizing 10 CFR Part 72 storage criteria for various GTCC waste types. This guidance will be incorporated into the next revision of the Spent Fuel Project Office Standard Review Plans.

9. Necessary changes to other 10 CFR Parts.

Comment: An industry commenter believes additional changes are necessary to 10 CFR Parts 30 and 70, (and 10 CFR Part 40 for completeness) for licensees to take full advantage of the proposed changes to 10 CFR Part 72. The regulations in 10 CFR Parts 30 and 70 need to identify exceptions in order to identify that 10 CFR Part 72 would address possession of GTCC waste for those licensees who utilize an ISFSI following termination of their 10 CFR Part 50 licenses. The exception in 10 CFR 70.1(c) needs to be expanded to include GTCC waste. Similar changes to 10 CFR 30.1 (and 10 CFR 40.1 for completeness), which do not currently include exception language similar to 10 CFR 70.1(c), also need to be made. The commenter believes that without these changes to 10 CFR Part 30 and 70, specific licenses would continue to be required under these parts, as appropriate.

Response: The NRC agrees in part with the commenter. Changes to 10 CFR 30.11(b) and 10 CFR 70.1(c) are made to identify that 10 CFR Part 72 specific licensees who possess power reactor-related GTCC waste within an ISFSI will be exempt from the requirements in 10 CFR Parts 30 and 70, to the extent that its activities are licensed under the requirements of 10 CFR Part 72. However, the NRC does not believe that changes are necessary to 10 CFR Part 40 because there should be no need for a source material license at an ISFSI or an MRS.

Accordingly, the final rule will revise 10 CFR 30.11 (b) and 10 CFR 70.1(c) as follows:

30.11(b) Any licensee's activities are exempt from the requirements of this part to the extent that its activities are licensed under the requirements of Part 72 of this chapter.

70.1(c) The regulations in Part 72 of this chapter establish requirements, procedures, and criteria for the issuance of licenses to possess:

(1) Spent fuel, power reactor-related Greater than Class C (GTCC) waste, and other radioactive materials associated with spent fuel storage in an independent spent fuel storage installation (ISFSI), or

(2) Spent fuel, high-level radioactive waste, power reactor-related GTCC waste, and other radioactive materials associated with the storage in a monitored retrievable storage installation (MRS), and the terms and conditions under which the Commission will issue such licenses.

B. Commingling of GTCC waste and spent fuel:

10. Question from the proposed rule: Should the storage of certain forms of GTCC waste and spent fuel in the same cask be prohibited? Or, should storage be permitted if performance criteria can be established? If so, what criteria should be used?

Comment: A State commenter believes that commingling should be prohibited without firm criteria for each chemical type of GTCC waste and the particular cask design. Assurance of chemical compatibility and ultimate cask structural integrity must be established. Without DOE disposal criteria for multi-purpose casks, spent fuel may have to be handled more than once prior to disposal, and commingling will just complicate matters even more. The commenter believes that DOE should promptly promulgate disposal criteria. Another State

commenter opposes any commingling of spent fuel and GTCC waste that contain resins which are composed of water and plastic because the high heat in spent fuel canisters can evaporate and build up pressure within a canister. A third State commenter urges the NRC to reconsider the proposed rulemaking as they believe that it is not advisable to allow commingling of spent fuel and GTCC waste at this time. The commenter notes that the incremental cost of additional GTCC waste canisters would be small relative to the total ISFSI costs and there would be a substantial risk by a licensee given the absence of criteria governing what constitutes an acceptable disposal package. Precluding commingling would also avoid technical issues when either moving the canisters or if re-licensing becomes necessary for spent fuel storage containers at the end of a 20-year license.

DOE supports the position that storage of commingled non-fuel bearing GTCC waste with spent fuel is acceptable under certain conditions. However, the DOE shares NRC's concern that commingled canisters may need to be opened and the GTCC waste separated prior to disposal. Therefore, any commingling decision needs to consider potential additional costs and radiological exposures associated with reopening a canister and removing the GTCC waste prior to acceptance by DOE of the spent fuel.

All six industry commenters on this topic support commingling when justified through a safety analysis. For example, one commenter believes that commingling has significant advantages and notes that many decommissioning reactors will only have about 15 cubic feet of GTCC waste. The advantages are reduced costs and reduced waste volume due to the more efficient utilization of canister volume. However, the commenter notes that, without a clear and defined position from DOE that they will accept commingled canisters, the utilities would take significant risks to commingle. The casks may need to be opened and the waste separated. This could be a tremendous burden for decommissioned reactor licensees because they would

no longer have the necessary facilities and personnel to reopen the cask and repackage the waste. However, one commenter noted that in DOE's, "Viability Assessment of a Repository at Yucca Mountain, Volume 2," dated December 1998, that it is DOE's design intention to open packages of commercial spent fuel received at Yucca Mountain. Therefore, DOE clearly has the opportunity to segregate the GTCC waste with little impact upon operations. The commenter also notes that commingling allows safer and more efficient management of GTCC waste. In some cases, during the first 20 years or more after reactor shutdown, GTCC waste, on a weight basis, can produce higher radiation doses than a spent fuel assembly. The GTCC waste could be placed in the center of a container and surrounded by spent fuel bundles to provide additional shielding.

Response: In 10 CFR 72.3, other radioactive materials associated with fuel assemblies are defined as spent fuel and storage within an ISFSI is the industry standard practice. These non-fuel components associated with fuel assemblies were designed for use inside the operating plant's reactor vessel with no risk to plant safety. The rule is not intended to change the previous guidance given on the storage of non-fuel components such as control rod elements, burnable poison rod assemblies, and thimble plugs. The NRC expectation is that these type of components will be stored and disposed of as part of the spent fuel assembly packages. The NRC recognizes that some of these components, if removed from fuel assemblies, could be classified as GTCC waste. The NRC's approach is to consider these non-fuel components as spent fuel and not as GTCC waste. The NRC believes that appropriate interim storage for these non-fuel components should be with its associated spent fuel assembly.

However, with respect to GTCC waste which is not integral to spent fuel assemblies, the NRC has concluded that, in general, GTCC waste should not be stored in the same cask with

spent fuel. In developing the rule, the NRC was cognizant of both potential DOE disposal criteria for GTCC waste to preclude unnecessarily allowing a storage option that is unacceptable for disposal and potential adverse interactions between spent fuel and various types of GTCC waste. The NRC believes that properly addressing potential adverse conditions from commingling spent fuel with certain types of GTCC waste presents significant safety and technical issues. In addition, because the DOE has not yet identified criteria for a disposal package, the NRC is concerned that storage of GTCC waste and spent fuel in the same container may be unacceptable for placement in the geologic repository. Therefore, the rule precludes the commingling of GTCC waste and spent fuel, except on a case-by-case basis, because the NRC desires to formulate regulations that both reduce radiological exposure and costs associated with repackaging the spent fuel and GTCC waste into two separate containers for disposal.

The NRC would review and approve certain commingling on a case-by-case basis for GTCC waste composed of solid metal components. This storage arrangement would be done at the licensee's own risk that segregation of this material may be required prior to transporting the spent fuel for final disposal. The NRC would expect that the licensee's decision process to commingle solid metal components would consider economic factors regarding the possibility that future segregation may be required for transportation and final disposal within a high-level waste repository or at a separate GTCC waste disposal facility. The incremental cost of storing separate GTCC waste canisters might be a relatively small increase in the total ISFSI costs. The NRC expects that, when DOE does provide disposal criteria, the NRC will revise our regulations for storage of GTCC waste to be consistent with DOE disposal requirements, if necessary.

However, the NRC agrees that resin and plastic material should not be commingled with spent fuel. Resins and plastic materials may contain organic compounds that may degrade under the thermal and radiolytic conditions present inside a spent fuel storage cask. The products of this decomposition may be corrosive and/or flammable (both solids and gases). As such, these decomposition products might adversely effect the integrity of the spent fuel cladding. The NRC concludes, however, that resins and plastics, that may be classified as GTCC waste, can be safely stored at an ISFSI in a separate container as long as the material has been solidified.

With respect to the comment that DOE intends to open packages at Yucca Mountain, the NRC specifically requested additional information from DOE on their current intent with regards to disposal of GTCC waste. In response to the proposed rule, DOE did not provide the NRC the information for the NRC to conclude that GTCC waste will be accepted for disposal at Yucca Mountain if this site should be selected as a repository. Therefore, after disposal criteria have been established by DOE, the NRC can revise its regulations and guidance, if necessary.

11. Question from the proposed rule: Should the storage of explosive, pyrophoric, combustible, or chemically reactive GTCC waste be prohibited in either commingled or separate GTCC casks? Or should storage be permitted if performance criteria can be established? If so, what criteria should be used?

Comment: The one State commenter believes its comment to question 10 applies to questions 11 through 14; that is, to prohibit commingling. Also, if the waste is explosive, pyrophoric, combustible, or chemically reactive, it should not be stored, or stored in its own specially designed cask.

Five industry commenters believe that with the proper conditions (e.g., limited capacity, relief devices, neutron absorbers, and the introduction of a moderator) these waste types can be safely stored but, as noted by one commenter, storage with these waste characteristics should only be allowed after appropriate conditioning to eliminate such characteristics. Also, storage should be allowed only if under worst-case conditions, an accident would not endanger public health and safety. Another commenter noted that it is highly unlikely that such material would be in reactor decommissioning GTCC waste.

Response: The NRC has concluded that GTCC waste that is explosive, pyrophoric, combustible or chemically reactive should only be stored at an ISFSI or an MRS if this material is solidified and stabilized. For these types of materials, the licensee programs must ensure that an analysis is conducted to show that these materials can be safely stored for the full period of the ISFSI or MRS license. The NRC concludes that this type of material, once stabilized and solidified, should be stored within a separate container as noted in response to question 9. The expectation is that the licensee's programs would ensure the design criteria address accident conditions, pressure buildup, and special shielding requirements, and that released gases meet off-site radiological limits.

12. Question from the proposed rule: Should the storage of GTCC that may generate or release gases via radiolytic or thermal decomposition, including flammable gases, be prohibited in either commingled or separate GTCC casks? Or should storage be permitted if performance criteria can be established? If so, what criteria should be used?

Comment: One State commenter believes its comment to question 10 applies to questions 11 through 14; that is, to prohibit commingling. The other State commenter opposes any commingling of spent fuel and GTCC waste that contain resins which are composed of

water and plastic because the high heat in spent fuel canisters can evaporate and build up pressure within a canister. The commenter opposes any mixture of gas-generating materials within a storage container.

Five industry commenters believe that with the proper conditions (e.g., quantities of gas released will not exceed safe limits) this waste type can be safely stored. Also, storage should be allowed only, if under worst-case conditions, an accident would not endanger public health and safety. Another commenter noted that it is highly unlikely that such material would be in reactor decommissioning GTCC waste.

Response: The NRC has concluded that GTCC waste that may release gases via radiolytic or thermal decomposition, including flammable gases should only be stored at an ISFSI if this material is solidified and stabilized to minimize these characteristics. For these types of materials, the licensee programs must ensure that an analysis is conducted to show that these materials can be safely stored for the full period of the ISFSI or MRS license. The NRC concludes that this type of material, once stabilized and solidified, should be stored within a separate container as noted in response to question 9. The expectation is that the licensee's programs would ensure the design criteria address accident conditions, pressure buildup, and that released gases meet off-site radiological limits.

13. Question from the proposed rule: Should the storage of solid GTCC waste that may contain free liquid (e.g., dewatered resin) be prohibited in either commingled or separate GTCC casks? Or should storage be permitted if performance criteria can be established? If so, what criteria should be used?

Comment: The one State commenter believes its comment to question 10 applies to questions 11 through 14; that is, to prohibit commingling.

Five industry commenters were mixed in that some believe that GTCC waste that may contain free liquids should not be commingled with spent fuel, while others believe that it should be allowed if supported by a Safety Analysis Report. One commenter noted that it is highly unlikely that such material would be in reactor decommissioning GTCC waste (i.e., dewatered resins from reactor plants are not GTCC waste).

Response: The NRC has concluded that solid GTCC waste that contains free liquids should be treated to remove excess free liquids prior to storage at an ISFSI or an MRS. For this solidified material, the licensee's programs must ensure that an analysis is conducted to show that these materials can be safely stored for the full period of the ISFSI or MRS license. The NRC concludes that this type of material, once solidified, should be stored within a separate container as noted in response to question 9. The expectation is that the licensee's programs would ensure the design criteria address accident conditions, pressure buildup, and that released gases meet off-site radiological limits.

14. Question from the proposed rule: Should the storage of liquid GTCC waste be prohibited in either commingled or separate GTCC casks? Or should storage be permitted if performance criteria can be established? If so, what criteria should be used?

Comment: The one State commenter believes its comment to question 10 applies to questions 11 through 14; that is, to prohibit commingling.

Five industry commenters were mixed in that some believe that liquid GTCC waste should not be commingled with spent fuel, while others believe that it should be allowed if supported by a Safety Analysis Report. One commenter noted that it is highly unlikely that such material would be in reactor decommissioning GTCC waste.

Response: The NRC has concluded that liquid GTCC waste should be solidified prior to storage at an ISFSI or an MRS. For this solidified material, the licensee's programs must ensure that an analysis is conducted to show that these materials can be safely stored for the full period of the ISFSI or MRS license. The NRC concludes that this type of material, once solidified, should be stored within a separate container as noted in response to question 9. The expectation is that the licensee's programs would ensure the design criteria address accident conditions, pressure buildup, and that release gases meet off-site radiological limits.

C. Agreement State issues (including specific questions for Agreement States in the proposed rule):

15. From the proposed rule: What is the position of the Agreement States on NRC assuming jurisdiction of storage of GTCC waste generated during the operation of a 10 CFR Part 50 license after termination of the 10 CFR Part 50 license?

Comment: Only four of the 32 Agreement States responded to this question, but none supported the NRC's exercise of jurisdiction. The four States' reasons varied. The first State commenter, South Carolina, does not view favorably relinquishing what it regards as its jurisdiction over reactor-related GTCC waste because, in South Carolina's view, the waste is composed of radioactive materials which Agreement States can be authorized to regulate under the AEA. South Carolina also noted that while the Low Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPAA) clearly makes the federal government responsible for the disposal of GTCC waste, it is silent on the responsibility for the interim storage of this waste. Therefore, South Carolina believes that the States can have some jurisdiction over the management and storage of these wastes and other low-level waste at decommissioned

10 CFR Part 50 facilities. South Carolina says that it may also want to have all GTCC waste stored at a central location rather than at numerous sites throughout the State. South Carolina also believes that the NRC and an Agreement State could effectively collaborate in the regulation of a single facility to avoid duplication of efforts and dual regulation. South Carolina believes that any GTCC waste storage facility constructed outside the restricted exclusion area of a reactor would be clearly subject to State jurisdiction. Further, South Carolina reports that, on a case-by-case basis, it allows temporary storage of selected GTCC waste (less than one percent above Class C limits) from 10 CFR Part 50 licensees at its Barnwell low-level waste disposal facility prior to disposing of this waste and wants to maintain licensing authority for reactor-related GTCC waste in order to continue this practice.

The second State commenter, Illinois, objects to what it sees as the NRC's disregard of the AEA of 1954, as amended, and of the Agreement between the NRC and the State of Illinois under Section 274b of the AEA. Illinois notes that Section 274b authorizes the NRC to discontinue, and an Agreement State to assume, regulatory authority over radioactive material, including byproduct material, source material, and special nuclear material in quantities not sufficient to form a critical mass, and Illinois believes that the NRC has relinquished its authority over these materials in its Agreement with Illinois. Further, section 274j of the AEA specifies the conditions under which the NRC can terminate or suspend all or part of an Agreement and reassert authority. Illinois also argues that neither of the two reasons the AEA gives for termination of an Agreement with an Agreement State -- that the Agreement State has either failed to protect the public heath and safety or failed to comply with requirements in Section 274 of the AEA -- is applicable to licensing the storage of GTCC waste, and neither reason is asserted in the proposed rule. Illinois says that the AEA provides the NRC with no authority to unilaterally modify Agreements with Agreement States, either by administrative fiat or by rule.

Illinois notes that, in the NRC's draft rulemaking plan, the NRC suggested that Agreement States voluntarily relinquish their licensing authority for GTCC waste but that three of the four Agreement State comments the NRC received opposed this concept. Illinois charges that the NRC now proposes a rule that would nullify Agreement State authority based on efficiency and consistency of licensing but that this ignores the provisions of the AEA for termination of an Agreement. Illinois disputes that the requirement, in Section 274c of the AEA, that forbids NRC discontinuance of its authority to license the construction and operation of production and utilization facilities provides NRC with the authority "to dictate that Agreement States no longer have authority to license storage of GTCC waste at a facility that is no longer licensed as a production or utilization facility."

The third State commenter, Utah, does not believe that the NRC should "usurp" State authority for licensing GTCC waste under 10 CFR Parts 30, 70, or 72, once a reactor is decommissioned. The State says there are other areas in which jurisdiction over AEA materials may be either State or Federal. The State believes that, after decommissioning, and especially where spent fuel is shipped offsite, the State should have a significant regulatory presence. (The commenter also believes that only the NRC should license GTCC waste storage casks.)

The fourth State commenter, New York, does not support what it calls the "carte blanche" relinquishment of its regulatory authority. New York believes that it has effectively collaborated with the NRC in the regulation of single facilities and is not aware of any problems. New York believes that cooperative effort can minimize duplication and maximize the value of limited resources while still allowing both regulatory entities to retain their current regulatory authority. New York believes relinquishment could be considered on a case-by-case basis where regulatory duplication could not be minimized or a Memorandum of Understanding could not be developed to resolve problematic issues.

Response: Until this rulemaking, which opens a clear path to storage of reactor-related GTCC waste co-located with spent fuel in an ISFSI or an MRS after termination of a 10 CFR Part 50 license, the Commission has not had occasion to examine systematically the interplay between NRC and Agreement State jurisdiction over reactor-related GTCC waste. The LLRWPAA assigns to the Federal government the ultimate responsibility for disposal of GTCC waste, but no statute or regulation has explicitly addressed the storage of such waste. After considering all comments received during the rulemaking, and after examining carefully the underlying regulatory and statutory scheme, the Commission now believes that the Commission should retain regulatory jurisdiction over reactor-related GTCC waste after termination of a reactor's 10 CFR Part 50 license.

The Commission's position follows directly from the existing Agreements the NRC and the States have entered into under section 274 of the AEA, and it is consistent with other law and with sound policy. Under section 274, Agreement States possess regulatory authority over radioactive waste only where the Commission has relinquished its preexisting authority. No Agreement explicitly mentions reactor-related GTCC waste, and though some Agreement States have programs for storage and disposal of non-reactor-related GTCC waste, programs that have been found compatible with the NRC's own program for regulating such wastes, section 274 Agreements cannot be understood as a general matter to relinquish Commission authority over reactor-related GTCC waste. These wastes are too integrally related to the operation of reactors, since these wastes consist for the most part of activated metal reactor components such as core shrouds, support plates, nozzles, core barrels, and in-core instrumentation. The Commission has reserved to itself matters so integral to the operation of reactors. Thus, when, under the section 274 program, the Commission reaches Agreements with States and relinquishes regulatory jurisdiction to them, the Commission specifically retains authority over

the "operation" of reactors, as required by an NRC rule promulgated nearly 40 years ago. Section 150.15(a)(1) of 10 CFR defines "operation" as follows:

> As used in this subparagraph, operation of a facility includes, *but is not limited to* (i) the storage and handling of radioactive wastes at the facility site by the person licensed to operate the facility; and (ii) the discharge of radioactive effluents from the facility site.

*Id.* (Emphasis added.)

In short, under longstanding agency rules, a State entering a section 274 Agreement with the NRC does not, and cannot, acquire regulatory authority over reactor-related GTCC waste. Thus, the Commission's assertion of ongoing NRC jurisdiction over reactor-related GTCC waste does not take back previously-granted State authority or terminate an NRC-State Agreement.

The approach just outlined is consistent with statutory law. Section 274 itself requires continued Commission authority over basic reactor operation even after entry of Agreements. See AEA, section 274(c)(1). Section 274 also contemplates continued Commission authority over "disposal" of certain types of waste material "because of the hazards or potential hazards thereof." See AEA, section 274(c)(4). The final rule the Commission issues today is consistent with these statutory provisions, because the GTCC waste over which the rule retains Commission jurisdiction was used by or generated at operating reactors and can reasonably be regarded as waste whose "potential hazards" warrant ultimate disposal under NRC supervision.

This conclusion is strongly reinforced by more recent statutory enactments specifically dealing with the handling of radioactive wastes. The Low Level Radioactive Waste Policy Amendments Act assigns to the Federal government the ultimate responsibility for disposal of GTCC waste, and to the NRC the responsibility for regulating the disposal of GTCC waste

generated by NRC licensees. See sections 3(b)(1)(D) and 3(b)(2) of the LLRWPAA.[4] The two principal facts behind these sections were that most States did not want to be ultimately responsible for the disposal of GTCC waste, and that the States did not want the GTCC waste buried in DOE's existing unlicensed low-level waste burial sites. Nonetheless, these sections have been read broadly enough to permit disposal of GTCC waste in facilities run by States or private entities -- as long as the Federal government was satisfied that the disposal provided adequate protection of public health and safety -- and to permit compatible Agreement State regulation of some GTCC waste stored and disposed of in a State or private facility. See, e.g., 54 Fed. Reg. 22578, 22579 (May 25, 1989).

However, the same statutory language cannot be read so broadly as to empower States to regulate storage and disposal of any and all GTCC waste. That is clearly the case with disposal. Indeed, the language of these two sections could more reasonably be read to prohibit the States from any regulation of disposal of reactor-related GTCC waste whatsoever. As for storage, these sections cannot be interpreted as allowing to Agreement States blanket and unlimited authority over storage of GTCC waste. Since the NRC indisputably has jurisdiction over GTCC waste while a reactor licensed under 10 CFR Part 50 is being operated, it makes obvious sense for the NRC to retain regulatory authority over the higher-activity, more integrally related to reactor operations, GTCC waste during the interim period -- i.e., between the time when the reactor is shut down and the time the GTCC waste goes to disposal. This is especially the case when, as many reactor owners contemplate, the GTCC waste could be

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4 Section 3(b)(1)(D) says, "The Federal Government shall be responsible for the disposal of ... any ... low-level radioactive waste with concentrations of radionuclides that exceed the limits established by the Commission for class C radioactive waste ...." Section 3(b)(2) says, "All radioactive waste designated a Federal responsibility pursuant to subparagraph (b)(1)(D) that results from activities licensed by the Nuclear Regulatory Commission ... shall be disposed of in a facility licensed by the ... Commission ...."

stored along with NRC-regulated spent fuel in an NRC-regulated ISFSI or MRS. Ordinary low-level radioactive waste is different, because no statute assigns the federal government ultimate responsibility for disposal, or the NRC explicit responsibility for regulating disposal, of such waste, nor is such waste so integrally related to reactor operations. Thus, issuance of this final rule does not affect the States' long-standing practice of exercising regulatory jurisdiction over ordinary low-level radioactive waste originally generated at reactors, or over GTCC waste generated by materials licensees regulated by Agreement States.

The alternative to NRC jurisdiction over reactor-related GTCC waste stored onsite or in an ISFSI or MRS is a regulatory scheme that calls for not one shift of regulatory authority, as in the case of Class A, B, or C low-level reactor waste, but two shifts of regulatory authority, one at plant shutdown, and the other at disposal. It is difficult to argue the sense of this, and impossible to argue its necessity.

The NRC agrees that States can work well with the NRC, and although the NRC is retaining regulatory authority over the storage and disposal of reactor-related GTCC waste, there are a number of ways States may participate in NRC regulation, as the States know from experience. For example, the Commission will continue to adhere to its Policy Statement, "Cooperation with States at Commercial Nuclear Power Plant and Other Nuclear Production or Utilization Facilities" (57 FR 6462; February 25, 1992), which allows States to develop specific arrangements, such as exchange of information, State observation of NRC inspection activities, and placement of State resident engineers at nuclear power plants. Nonetheless, it would be a non sequitur to argue that, because the NRC and an Agreement State can work well together, they both should have regulatory power at, say, an NRC-regulated ISFSI that contains both spent fuel, regulated by the NRC, and reactor-related GTCC waste in an NRC-regulated spent fuel cask.

16. From the proposed rule: What controls and regulatory frameworks would the Agreement States envision, assuming they have jurisdiction over GTCC waste generated during the operation under a 10 CFR Part 50 license after termination of the 10 CFR Part 50 license? How would the Agreement States plan to ensure consistency with a national regulatory scheme?

Comment: Only two States responded. The first said that it cannot say what other Agreement States could do, and that each State should be evaluated on its own. But this State nevertheless claimed that GTCC waste is similar to Class B and C waste, which States have regulated for years. The State believes it has the experience and capability needed to establish the controls and regulatory framework comparable to NRC standards. It therefore believes that it is capable of administering 10 CFR Part 72 standards. The second State argued that consistency with a national regulatory scheme for storage of GTCC waste would be ensured in the same manner in which the consistency of other Agreement State regulation in other areas is ensured. The second State envisions establishing controls and a regulatory framework that are compatible with the NRC's for this type of waste storage.

Response: With so few responses, the NRC cannot form a clear picture of how the Agreement States would regulate storage of all reactor-related GTCC waste to ensure consistency with a national program for regulating such waste. As we note in the response to the next question, some State regulation of the storage and disposal of some marginally reactor-related GTCC waste has already occurred in a way that is consistent with a coherent national program that protects public health and safety. But the question here is whether such a program can be established that would permit State regulation of all GTCC waste as a general matter, no matter what the activity level, no matter how integrally related to reactor operation, and no matter whether stored with spent fuel or not. It is certainly true, as one of the States said,

that the NRC has authority under section 274 of the AEA to take steps that help assure that State programs are "compatible" with the NRC's own programs. Indeed, it is the NRC's responsibility to work to assure such compatibility. Nonetheless, compatibility, like safety, is ultimately not the NRC's doing. Only the Agreement States can establish and maintain compatible programs. The NRC can only measure the degree of compatibility and health and safety, through the Integrated Materials Performance Evaluation Program, and take the steps necessary to enforce that compatibility and health and safety where it is missing. In the absence of a widespread and clear commitment on the part of the States to ensure compatible regulation of the storage of reactor-related GTCC waste, the NRC does not have a strong practical justification for exercising its discretion in such a way as to permit States to exercise jurisdiction over storage of all such waste.

17. From the proposed rule: The NRC staff is not aware of any current Agreement State license for the storage of reactor-related GTCC waste. Are there any such licenses within your State or are you aware of any such Agreement State licenses?

Comment: Two States commented. Illinois reports that it does not have any reactor-related GTCC waste under license. South Carolina reports that it allows temporary storage of some approved GTCC waste from 10 CFR Part 50 licensees (less than 1 percent above Class C limits) while awaiting disposal at its licensed Barnwell low-level waste facility. South Carolina also licenses the partially decommissioned Carolinas-Virginia Nuclear Power Associates (CVNPA) reactor**,** a commercial test reactor sponsored by a consortium of power companies. This reactor was formerly licensed by the Atomic Energy Commission (AEC), but its AEC 10 CFR Part 50 license was terminated after the reactor was shut down and placed in a SAFSTOR decommissioned status. Concurrent with the termination of the facility license, the

AEC issued a Byproduct Material License which authorized CVNPA to possess and store the byproduct material in the remaining structures and dismantled parts. In 1969, the AEC transferred this Byproduct Material License to South Carolina. The site is currently undergoing complete decommissioning and dismantlement. South Carolina states that "[a]lthough waste classification of the irradiated reactor components [is] not complete, it is likely there will be some GTCC waste that may require licensure by the State for interim storage, or may be transferred to one of their parent 10 CFR Part 50 licensees for storage."

Response: We note that South Carolina currently regulates storage and disposal of some reactor-related GTCC waste at its Barnwell low-level waste disposal facility. It is South Carolina's practice, as noted in its comment, to accept for storage and disposal at Barnwell only reactor-related waste that is less than 1 percent above the NRC's limits for Class C low-level waste on a case-by-case basis. There is no significant difference between the way such waste should be handled and the way South Carolina handles Class C low-level waste. Thus the Commission does not seek any change in South Carolina's practice. Moreover, there is no question that the States will continue to exercise their current jurisdiction over low-level waste other than GTCC waste, and over GTCC waste that is not reactor-related. With respect to the CVNPA site, if it turns out that some reactor-related GTCC waste results from the further characterization and decommissioning work planned for this site, South Carolina will need to consult with the NRC as to the appropriate management of this waste.

D. Other comments:

18. Blending GTCC waste within the reactor vessel.

Comment: The private citizen commenter believes that the NRC is not following ALARA principles by requiring that small quantities of GTCC waste be segregated from other low-level waste within the reactor vessel. If GTCC waste were left within the reactor vessel and blended with the lower activity material within the vessel, it could be safely disposed of as low level waste. The collective dose to segregate the GTCC waste versus burial of the reactor vessel, averaged to be below Class C, would be significantly less. Therefore, the NRC should develop additional rulemaking and/or guidance on the blending of reactor internals to reduce worker dose.

Response: This rulemaking is designed to add flexibility for the storage of GTCC waste and has not eliminated any current option that licensees may wish to use to store GTCC waste. If the licensee desires to dispose of the reactor vessel, the NRC and appropriate Agreement States will review this on a case-by-case basis. The regulatory process and review could be similar to that used by the NRC and Washington State in approving Portland General Electric Company's (i.e., the Trojan nuclear facility) transportation and disposal of its reactor vessel at a LLW facility. The NRC expects the licensee will consider ALARA principles in determining the best disposal option.

19. Away from reactor storage.

Comment: The State of Utah is greatly concerned, and adamantly opposes, the storage of GTCC waste at away-from-reactor ISFSIs, including something such as the proposed Private Fuel Storage facility for spent fuel. The commenter believes that there is the potential that most of the nation's spent nuclear fuel and GTCC waste could be shipped to Utah and that, once there, it will never leave the State. The commenter notes that there are no long term GTCC waste disposal plans. The commenter believes that the NRC must restrict storage to at-reactor

ISFSIs and not allow GTCC waste to be shipped across the country unless, and until, decisive plans have been made for the permanent disposition of GTCC waste. The commenter notes from DOE documents that DOE anticipates that GTCC waste will remain at the reactor site until a disposal option becomes available, and that currently the disposal option is not known. The proposed rule is mute on the disposition of the waste at the end of a 10 CFR Part 72 ISFSI license. The commenter believes there is a significant volume of GTCC waste that could be shipped away from the reactor site and the NRC is silent on the transportation of GTCC waste. There is no discussion about transportation containers or the exposure level and the population at risk from transportation.

The commenter believes that NRC needs to prepare a programmatic or generic environmental impact statement (EIS) for the transportation of GTCC waste since this could be a significant departure from the current regulatory scheme and a significant federal action affecting the quality of the human environment. If the proposed Private Fuel Storage ISFSI on the Skull Valley Goshute Indian reservation in Utah becomes the prime location for GTCC waste storage, the proposed rule would permit the mass movement of GTCC waste across the country. In this respect, the NRC cannot rely on its "waste confidence rule" because the waste confidence rule only applies to spent fuel. The NRC does not address the final disposition of GTCC waste. In fact, the NRC decommissioning rule under 10 CFR Part 72 only requires the applicant to propose and fund a decommissioning plan after removal of GTCC waste which may never occur. The commenter notes that no EIS has ever been prepared on the transportation of GTCC waste which may be long-lived and can contain millions of curies of radioactivity. The commenter believes particular attention is needed for GTCC waste resins and an evaluation of the hazard of an accident involving a long-duration fire. Resins contain water and plastic which would evaporate and melt unlike activated metals. The commenter believes NRC cannot rely on

RADTRAN, a transportation model, because GTCC waste resins are composed of elements that RADTRAN does not address (e.g., ion exchange resins). Moreover, the NRC cannot rely on an EIS conducted for a site specific ISFSI that only addresses storage of spent fuel.

The State of Utah also believes that NRC has not thought through issues related to insurance requirements; liability for harm resulting from GTCC waste; and complexities of waste ownership. Utah maintains that a void will occur in insurance coverage for GTCC waste at an away-from-reactor ISFSI; the generating facility would no longer cover that waste, and the Price Anderson Act would not cover transportation incidents to and from the ISFSI because GTCC waste is not high level waste. Utah also notes as negatives that 10 CFR Part 72 fails to require on-site property insurance; multiple owners of the mix of GTCC waste at an away-from-reactor ISFSI will complicate assigning liability and after decommissioning of a reactor site, the "deep-pocket" utility ceases to be an "owner" thus shedding responsibility for the GTCC waste. Also, the State expresses concern that after an accident, it may need to take action in order to protect public health and safety, even though it lacks regulatory authority.

Response: The NRC disagrees with the comments. The comments generally stated that the GTCC waste should not be shipped to an away-from-reactor ISFSI site due to lack of analysis regarding transportation containers or the exposure level and the population at risk from transportation. The transportation of radioactive material, which includes GTCC waste, was previously analyzed by the NRC in NUREG 0170, "Final Environmental Statement on the Transportation of Radioactive Materials by Air and Other Modes." This EIS covered the transport of all types of radioactive material by all transport modes (including GTCC waste). Transportation of GTCC waste and other Type B quantities of radioactive material (i.e., spent fuel) is governed by the NRC regulations in 10 CFR Part 71 and the Department of Transportation (DOT) regulations in 49 CFR Part 173. The NRC believes that NUREG-0170

bounds the environmental impact from the shipment of GTCC waste and this waste can be safely shipped in compliance with these regulations. Separately, the NRC notes that an assessment of the environmental impacts associated with the transportation of radioactive material to and from an away-from-reactor ISFSI would be addressed to the extent appropriate in a licensing action on an away-from-reactor ISFSI. Therefore, the NRC believes that the storage of GTCC waste need not be limited to a reactor site.

With respect to the comment on insurance and liability, under existing law, there is no cause for a void in insurance coverage for GTCC waste at an away-from-reactor ISFSI even though 10 CFR Part 72 does not provide specific insurance or indemnity requirements for an away-from-reactor facility. Licensing actions to permit away-from-reactor storage may be made subject to license conditions for the maintenance of appropriate amounts of liability insurance up to $200 million. $200 million is the maximum insurance currently commercially available to cover offsite public liability and is the amount required for large power reactors. In addition, there may be appropriate commitments, confirmed by license conditions, for insurance to cover onsite damages.

The Price-Anderson Act (Atomic Energy Act § 170, 42 U.S.C. 2210 & 2014 (related definitions)) requires indemnification for 10 CFR Part 50 facilities. The Act also gives the Commission discretionary authority to extend indemnity coverage to activities undertaken by three types of materials licensees. See 42 U.S.C. and 42 U.S.C. 2210 a. Thus, the Commission can indemnify away-from-reactor ISFSIs in the event the Commission were to find that the risks of offsite damage are so large as to be uninsurable or that the public interest requires it. Moreover, the Price Anderson Act does not restrict its coverage of reactor waste to spent fuel. Thus, were the Commission to use its discretion to cover away-from-reactor ISFSIs, all transportation to and from them would be covered. However, even lacking such a

discretionary designation, transportation of GTCC waste to the ISFSI would, in any event, be covered by the generator's Price Anderson coverage. Likewise, if the final transportation were to be to an indemnified facility, such as a DOE facility, that transportation would be covered by Price Anderson. See e.g. Atomic Energy Act, § 170n(1)(B) and 42 U.S.C. n(1)(B).

In addition, to address any perceived problem from the multiplicity of customers, 10 CFR Part 72 license conditions can require terms in service agreements by which customers would retain title to the GTCC waste stored and allocation of liability would be made among them. Where needed, additional financial assurances could be provided. Also, § 72.30's provisions for "Financial assurance and recordkeeping for decommissioning" includes a requirement that the decommissioning plan have a funding plan that contains information on how reasonable assurance will be provided that funds will be available to decommission the ISFSI or MRS.

Finally, the State's possible need in an emergency "to take action even though it is not the regulator of the GTCC waste" is no different from the circumstance in an emergency resulting from a nuclear power plant or other federally regulated facility that uses radioactive materials. There are like requirements imposed on the 10 CFR Part 72 licensee for notification and requests for offsite assistance. See § 72.32. The Commission is confident that a partnership of Federal, State, local, and Tribal governments will act to protect the public health and safety and the environment.

20. The definition of the term "cask."

Comment: One commenter believes that the NRC needs to be clearer when using the term cask as it is defined and used in 10 CFR 72.121(a)(2) and 72.230(b). Reference is made to "casks that have been certified...under Part 71," but cask is not defined in either 10 CFR Part 71 or the transportation regulations in 49 CFR. The term cask is commonly used

throughout the nuclear power industry to refer to one or more types of transport packaging, but it is also generally accepted that the correct term is “packaging” rather than “cask.” Spent fuel dry storage has extended the application of the term cask, yet it is not formally defined in either 10 CFR or 49 CFR. The commenter noted that the proposed rule included a definition for the terms “spent fuel storage cask or cask,” but believes that although the intent is good, the definition may raise more questions than it resolves in that the definition focuses on a container and not a package. The term container is not defined in either 10 CFR or 49 CFR, resulting in a new definition which is based on an undefined term. Does cask refer to (1) a package, (2) packaging, or (3) something else? This is particularly important when referring to “casks that have been certified...under Part 71," which would suggest a specific package or packaging. The commenter believes that 10 CFR should avoid any term related to transportation which would create an inconsistency with 49 CFR. The commenter proposes several alternative solutions based on the intended meaning of cask to maintain consistency with 49 CFR and believes the term should be reviewed by the Department of Transportation and incorporated into 49 CFR 171.8 during the next revision.

Response: The commenter requested that the NRC modify the definition of the term “cask” as used in 10 CFR 72.121(a)(2) to better correlate this term to the term packaging and packages used in 10 CFR Part 71. The NRC believes the commenter’s reference should have been to 10 CFR Part 72.212(a)(2) which discusses the use of casks certified under 10 CFR Part 72. The NRC believes the definition for the term cask should not be changed. The general term cask as used in 10 CFR Part 72 is intended to speak to the cask design characteristics such as criticality, shielding, thermal loading, and structural integrity and not all the components of a typical transportation packaging such as an impact limiter. Because there is not a good correlation between the 10 CFR Part 72 cask definition and 10 CFR Part 71 packaging and

packages, attempting to relate the terms might cause confusion. As indicated by the commenter, it is very important that terms used in 10 CFR Part 71 and DOT regulations are consistent. In the proposed rule the only change intended for the term spent fuel storage cask or cask was to allow the storage of reactor-related GTCC waste within a cask and attempting to change these terms within NRC regulations would require corresponding changes in DOT regulations which is beyond the scope of this rulemaking.

However, in evaluating this comment, the NRC believes that changing the definition of "spent fuel storage cask or cask" to include GTCC waste was unintended. Adding GTCC waste to this definition would require that this waste type be stored in a "spent fuel storage cask." The NRC did not intend for the requirements in 10 CFR Part 72 to be as prescriptive as could be implied in the proposed rule.

Accordingly the final rule removes the change in the proposed rule to § 72.3 dealing with the definition of "spent fuel storage cask or cask."

## Section-by-Section Analysis

The following section is provided to assist the reader in understanding the specific changes made to each section or paragraph in 10 CFR Parts 30, 70, 72, and 150. For clarity of content in reading a section, much of that particular section may be repeated, although only a minor change is being made. This section should allow the reader to effectively review the specific changes without reviewing existing material that has been included for content, but has not been significantly changed.

Section 30.11(b) is a new paragraph, it was previously reserved, to exempt a licensee from the requirements of 10 CFR Part 30, to the extent that its activities are licensed under the requirements of 10 CFR Part 72.

Section 70.1(c) is being revised to exempt a licensee from the requirements of 10 CFR Part 70 when power reactor-related GTCC waste is being stored under the requirements of 10 CFR Part 72.

The title to 10 CFR Part 72 is being revised to include GTCC waste.

The following sections or paragraphs are being revised to specify the inclusion of GTCC waste, for clarity, or for completeness: §§ 72.1, 72.2(a) and (c), 72.8, 72.16(d), 72.22(e)(3), 72.24 introductory text and (i), 72.28(d), 72.30(a), 72.44(b)(4), (c)(3)(i), (c)(5), (d) and (g)(2), 72.52(b)(2), (c), and (e), 72.54(c)(1), 72.60(c), 72.72(a), (b), and (d), 72.75(b), (c), (d)(1)(iv), and (d)(2)(ii)(L), 72.80(g), 72.82(a) and (b), 72.106(b), 72.108 title and text, 72.122(b)(2), (h)(2), (h)(5), (i), and (l), 72.128 title and (a), and 72.140(c)(2). Also, §§ 72.72, 72.76, and 72.78 have been modified to clarify the reporting requirements for special nuclear material as specified in 10 CFR 74.13(a)(1).

Section 72.3: The definition for GTCC waste is being added to 10 CFR Part 72 and the definitions of Design capacity, Independent spent fuel storage installation or ISFSI, Monitored Retrievable Storage Installation or MRS, and Structures, systems, and components important to safety, are being revised to specify the inclusion of GTCC waste.

Section 72.6: This section has been revised to clearly indicate that reactor-related GTCC waste only can be stored under the provisions of a 10 CFR Part 72 specific license.

Section 72.40(b): This section has been modified for clarity and by adding a new introductory sentence that would include reactor-related GTCC waste. Also, reference to the Atomic Safety and Licensing Appeal Board has been removed since this board no longer exists.

Sections 72.72(a), 72.76(a), and 72.78(a): These sections have been modified to clarify the reporting requirements for special nuclear material as specified in 10 CFR 74.13(a)(1).

Section 72.120: This section has been modified for clarity and to provide some general considerations for the storage of GTCC waste within an ISFSI or an MRS.

Paragraph 150.15(a)(7)(i) and (ii): Essentially repeats the text of the existing paragraphs with amendments for consistency with the new § 150.15(a)(7)(iii).

Paragraph 150.15(a)(7)(iii): This new paragraph will specify that the storage of reactor-related GTCC waste within an ISFSI or an MRS licensed pursuant to 10 CFR Part 50 and/or Part 72 is exempt from Agreement State authority.

Paragraph 150.15(a)(8): This new paragraph will specify that the storage of reactor-related GTCC waste licensed under 10 CFR Part 30 and/or Part 70 is exempt from Agreement State authority.

In the NRC's final rule, "Clarification and Addition of Flexibility" (65 FR 50606; August 21, 2000), changes have been made to 10 CFR Part 72. Section 72.140(c)(2) is the only section that is being changed in both rules and this rulemaking is consistent with the "Clarification" rulemaking changes.

## Compatibility of Agreement State Regulations

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), § 70.1(c), 10 CFR Part 72 and § 150.15 continue to be classified as compatibility Category "NRC." Section 30.11(b) is also classified as Category "NRC." Previously, this subsection was reserved and classified as Category "D," not

required for purposes of compatibility. The NRC program elements in Category "NRC" are those that relate directly to areas of regulation reserved to the NRC by the Atomic Energy Act of 1954, as amended, or provisions of Title 10 of the Code of Federal Regulations.

Because the Commission was particularly interested in the position of the Agreement States on certain issues, three questions were identified in the proposed rule for Agreement State input. Five of the 32 Agreement States commented on the proposed rule (four on the three questions). The comments and responses on the specific Agreement State questions are found on the Comments in the Proposed Rule section, comment numbers 15, 16, and 17.

## Voluntary Consensus Standards

The National Technology Transfer and Advancement Act of 1995, Pub. L. 104-113, requires that agencies use technical standards that are developed or adopted by voluntary consensus standard bodies unless the use of such a standard is inconsistent with applicable law or otherwise impractical. In this rule, the NRC is presenting amendments to its regulations that would allow the licensing of interim storage of GTCC waste. This action does not constitute the establishment of a standard that establishes generally-applicable requirements and the use of a voluntary consensus standard is not applicable.

## Finding of No Significant Environmental Impact: Availability

The Commission has determined under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, 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. The rule will provide reactor licensees an additional option of storing GTCC waste under a 10 CFR Part 72 license using spent fuel storage criteria of that part. Storage of GTCC waste at an ISFSI or an MRS would be in a passive mode with no human intervention needed for safe storage. The Environmental Assessment determined that there is no significant environmental impact as a result of these changes.

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, 11555 Rockville Pike, Rockville, MD. Single copies of the Environmental Assessment and the finding of no significant impact are available from Mark Haisfield, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-6196.

## Paperwork Reduction Act Statement

This final rule amends information collection requirements contained in 10 CFR Part 72 that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq). These requirements were approved by the Office of Management and Budget, approval number 3150-0132. The proposed changes to 10 CFR Part(s) 30, 70, and 150 do not contain a new or amended information collection requirement. Existing requirements were approved by the Office of Management and Budget, approval number(s) 3150-0017, 3150-0009, and 3150-0032.

The burden to the public for this information collection is estimated to average 120 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information

collection. Send comments on any aspect of this information collection, including suggestions for reducing the burden, to the Records Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington DC 20555-0001, or by Internet electronic mail at BJS1@NRC.GOV; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0132), Office of Management and Budget, Washington DC 20503.

## Public Protection Notification

If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

## Regulatory Analysis

The Commission has prepared a final Regulatory Analysis on this regulation. The analysis examines the costs and benefits of the alternatives considered by the Commission. The analysis is available for inspection at the NRC Public Document Room, 11555 Rockville Pike, Rockville, MD. Single copies of the Regulatory Analysis are available from Mark Haisfield, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 415-6196.

## Regulatory Flexibility Certification

As required by the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the Commission certifies that this rule will not have a significant economic impact upon a substantial number of small entities. The amendments will apply to reactor licensees, ISFSI licensees, certificate holders, applicants for a Certificate of Compliance, and DOE. The majority, if not all, of these licensees would not qualify as small entities under the NRC's size standards (10 CFR 2.810).

## 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.

## Backfit Analysis

The NRC has determined that the backfit requirements, 10 CFR 50.109 and 72.62, do not apply to this rule, and therefore, a backfit analysis is not required because these amendments do not involve any provisions that would impose backfits as defined in 10 CFR 50.109(a)(1) or 72.62(a). This rule will not require licensees to use 10 CFR Part 72 to store GTCC waste. It provides a practical option with criteria that licensees may use. It does not preclude, or change, use of 10 CFR Parts 30 and 70 as a licensing mechanism to store GTCC waste. The NRC anticipates that storage of GTCC waste licensed under 10 CFR Part 72 can simplify the licensing process, for both licensees and the NRC, with no significant impact to public health and safety or the environment.

List of Subjects

10 CFR Part 30

Byproduct material, Criminal penalties, Government contracts, Intergovernmental relations, Isotopes, Nuclear materials, Radiation protection, Reporting and recordkeeping requirements.

10 CFR Part 70

Criminal penalties, Hazardous materials transportation, Material control and accounting, Nuclear materials, Packaging and containers, Radiation protection, Reporting and recordkeeping requirements, Scientific equipment, Security measures, Special nuclear material.

10 CFR Part 72

Criminal penalties, Manpower training programs, Nuclear materials, Occupational safety and health, Reporting and recordkeeping requirements, Security measures, Spent fuel.

10 CFR Part 150

Criminal penalties, Hazardous materials transportation, Intergovernmental relations, Nuclear materials, Reporting and recordkeeping requirements, Security measures, Source material, Special nuclear material.

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. 553, the NRC is adopting the following amendments to 10 CFR Parts 30, 70, 72 and 150.

**PART 30–RULES OF GENERAL APPLICABILITY TO DOMESTIC LICENSING OF BYPRODUCT MATERIAL**

1. The authority citation for Part 30 continues to read as follows:

**Authority:** Secs. 81, 82, 161, 182, 183, 186, 68 Stat. 935, 948, 953, 954, 955, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2111, 2112, 2201, 2232, 2233, 2236, 2282); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846).

Section 30.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 as amended by Pub. L. 102-486, sec. 2902, 106 Stat. 3123, (42 U.S.C. 5851). Section 30.34(b) also issued under sec.184, 68 Stat. 954, as amended (42 U.S.C. 2234). Section 30.61 also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

2. In § 30.11 a new paragraph (b) is added to read as follows:

§ 30.11 Specific exemptions.

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(b) Any licensee's activities are exempt from the requirements of this part to the extent that its activities are licensed under the requirements of Part 72 of this chapter.

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**PART 70–DOMESTIC LICENSING OF SPECIAL NUCLEAR MATERIAL**

3. The authority citation for Part 70 continues to read as follows:

**Authority:** Secs. 51, 53, 161, 182, 183, 68 Stat. 929, 930, 948, 953, 954, as amended, sec. 234, 83 Stat. 444, as amended, (42 U.S.C. 2071, 2073, 2201, 2232, 2233, 2282, 2297f); secs. 201, as amended, 202, 204, 206, 88 Stat. 1242, as amended, 1244, 1245, 1246 (42 U.S.C. 5841, 5842, 5845, 5846). Sec. 193, 104 Stat. 2835 as amended by Pub. L. 104-134, 110 Stat. 1321, 1321-349 (42 U.S.C. 2243).

Sections 70.1(c) and 70.20a(b) also issued under secs. 135, 141, Pub. L. 97-425, 96 Stat. 2232, 2241 (42 U.S.C. 10155, 10161). Section 70.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 (42 U.S.C. 5851). Section 70.21(g) also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Section 70.31 also issued under sec. 57d, Pub. L. 93-377, 88 Stat. 475 (42 U.S.C. 2077). Sections 70.36 and 70.44 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Section 70.61 also issued under secs. 186, 187, 68 Stat. 955 (42 U.S.C. 2236, 2237). Section 70.62 also issued under sec. 108, 68 Stat. 939, as amended (42 U.S.C. 2138).

4. In § 70.1 paragraphs (c)(1) and (2) are revised to read as follows:

§ 70.1 Purpose.

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(c) ★ ★ ★

(1) Spent fuel, power reactor-related Greater than Class C (GTCC) waste, and other radioactive materials associated with spent fuel storage in an independent spent fuel storage installation (ISFSI), or

(2) Spent fuel, high-level radioactive waste, power reactor-related GTCC waste, and other radioactive materials associated with the storage in a monitored retrievable storage

installation (MRS), and the terms and conditions under which the Commission will issue such licenses.

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**Part 72–LICENSING REQUIREMENTS FOR THE INDEPENDENT STORAGE OF SPENT NUCLEAR FUEL, HIGH-LEVEL RADIOACTIVE WASTE, AND REACTOR-RELATED GREATER THAN CLASS C WASTE**

5. The heading of Part 72 is revised to read as presented above:

6. 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. 295 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. (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. 935 (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, 2244 (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).

7. Section 72.1 is revised to read as follows:

§ 72.1 Purpose.

The regulations in this part establish requirements, procedures, and criteria for the issuance of licenses to receive, transfer, and possess power reactor spent fuel, power reactor-related Greater than Class C (GTCC) waste, and other radioactive materials associated with spent fuel storage in an independent spent fuel storage installation (ISFSI) and the terms and conditions under which the Commission will issue these licenses. The regulations in this part also establish requirements, procedures, and criteria for the issuance of licenses to the Department of Energy (DOE) to receive, transfer, package, and possess power reactor spent fuel, high-level radioactive waste, power reactor-related GTCC waste, and other radioactive materials associated with the storage of these materials in a monitored retrievable storage installation (MRS). The term *Monitored Retrievable Storage Installation or MRS*, as defined in § 72.3, is derived from the Nuclear Waste Policy Act (NWPA) and includes any installation that meets this definition. The regulations in this part also establish requirements, procedures, and criteria for the issuance of Certificates of Compliance approving spent fuel storage cask designs.

8 In § 72.2 paragraphs (a) and (c) are revised to read as follows:

§ 72.2 Scope.

(a) Except as provided in § 72.6(b), licenses issued under this part are limited to the receipt, transfer, packaging, and possession of:

(1) Power reactor spent fuel to be stored in a complex that is designed and constructed specifically for storage of power reactor spent fuel aged for at least one year, other radioactive materials associated with spent fuel storage, and power reactor-related GTCC waste in a solid form in an independent spent fuel storage installation (ISFSI); or

(2) Power reactor spent fuel to be stored in a monitored retrievable storage installation (MRS) owned by DOE that is designed and constructed specifically for the storage of spent fuel aged for at least one year, high-level radioactive waste that is in a solid form, other radioactive materials associated with storage of these materials, and power reactor-related GTCC waste that is in a solid form.

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(c) The requirements of this regulation are applicable, as appropriate, to both wet and dry modes of storage of --

(1) Spent fuel and solid reactor-related GTCC waste in an independent spent fuel storage installation (ISFSI); and

(2) Spent fuel, solid high-level radioactive waste, and solid reactor-related GTCC waste in a monitored retrievable storage installation (MRS).

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9. Section 72.3 is amended by adding a definition, in its proper alphabetic order, of the term Greater than Class C waste, and revising the definitions of Design capacity, Independent spent fuel storage installation or ISFSI, Monitored Retrievable Storage Installation or MRS, and Structures, systems, and components important to safety, to read as follows:

§ 72.3 Definitions.

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*Design capacity* means the quantity of spent fuel, high-level radioactive waste, or reactor-related GTCC waste, the maximum burn up of the spent fuel in MWD/MTU, the terabequerel (curie) content of the waste, and the total heat generation in Watts (btu/hour) that the storage installation is designed to accommodate.

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*Greater than Class C waste or GTCC waste* means low-level radioactive waste that exceeds the concentration limits of radionuclides established for Class C waste in § 61.55 of this chapter.

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*Independent spent fuel storage installation or ISFSI* means a complex designed and constructed for the interim storage of spent nuclear fuel, solid reactor-related GTCC waste, and other radioactive materials associated with spent fuel and reactor-related GTCC waste storage. An ISFSI which is located on the site of another facility licensed under this part or a facility licensed under Part 50 of this chapter and which shares common utilities and services with that facility or is physically connected with that other facility may still be considered independent.

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*Monitored Retrievable Storage Installation or MRS* means a complex designed, constructed, and operated by DOE for the receipt, transfer, handling, packaging, possession, safeguarding, and storage of spent nuclear fuel aged for at least one year, solidified high-level radioactive waste resulting from civilian nuclear activities, and solid reactor-related GTCC waste, pending shipment to a HLW repository or other disposal.

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*Structures, systems, and components important to safety* means those features of the ISFSI, MRS, and spent fuel storage cask whose functions are —

(1) To maintain the conditions required to store spent fuel, high-level radioactive waste, or reactor-related GTCC waste safely;

(2) To prevent damage to the spent fuel, the high-level radioactive waste, or reactor-related GTCC waste container during handling and storage; or

(3) To provide reasonable assurance that spent fuel, high-level radioactive waste, or reactor-related GTCC waste can be received, handled, packaged, stored, and retrieved without undue risk to the health and safety of the public.

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10. Section 72.6 is revised to read as follows:

§ 72.6 License required; types of licenses.

(a) Licenses for the receipt, handling, storage, and transfer of spent fuel or high-level radioactive waste are of two types: general and specific. Licenses for the receipt, handling, storage, and transfer of reactor-related GTCC are specific licenses. Any general license provided in this part is effective without the filing of an application with the Commission or the issuance of a licensing document to a particular person. A specific license is issued to a named person upon application filed pursuant to regulations in this part.

(b) A general license is hereby issued to receive title to and own spent fuel, high-level radioactive waste, or reactor-related GTCC waste without regard to quantity. Notwithstanding any other provision of this chapter, a general licensee under this paragraph is not authorized to acquire, deliver, receive, possess, use, or transfer spent fuel, high-level radioactive waste, or reactor-related GTCC waste except as authorized in a specific license.

(c) Except as authorized in a specific license and in a general license under subpart K of this part issued by the Commission in accordance with the regulations in this part, no person may acquire, receive, or possess --

(1) Spent fuel for the purpose of storage in an ISFSI; or

(2) Spent fuel, high-level radioactive waste, or radioactive material associated with high-level radioactive waste for the purpose of storage in an MRS.

11. Section 72.8 is revised to read as follows:

§ 72.8 Denial of licensing by Agreement States.

Agreement States may not issue licenses covering the storage of spent fuel and reactor-related GTCC waste in an ISFSI or the storage of spent fuel, high-level radioactive waste, and reactor-related GTCC waste in an MRS.

12. Section 72.16 is amended by revising paragraph (d) to read as follows:

§ 72.16 Filing of application for specific license.

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(d) *Fees.* The application, amendment, and renewal fees applicable to a license covering an ISFSI are those shown in § 170.31 of this chapter.

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13. Section 72.22 is amended by revising paragraph (e)(3) to read as follows:

§ 72.22 Contents of application: General and financial information.

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(e) ★ ★ ★

(3) Estimated decommissioning costs, and the necessary financial arrangements to provide reasonable assurance before licensing, that decommissioning will be carried out after the removal of spent fuel, high-level radioactive waste, and/or reactor-related GTCC waste from storage.

14. Section 72.24 is amended by revising the introductory paragraph and paragraph (i) to read as follows:

§ 72.24 Contents of application: Technical information.

Each application for a license under this part must include a Safety Analysis Report describing the proposed ISFSI or MRS for the receipt, handling, packaging, and storage of spent fuel, high-level radioactive waste, and/or reactor-related GTCC waste as appropriate, including how the ISFSI or MRS will be operated. The minimum information to be included in this report must consist of the following:

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(i) If the proposed ISFSI or MRS incorporates structures, systems, or components important to safety whose functional adequacy or reliability have not been demonstrated by prior use for that purpose or cannot be demonstrated by reference to performance data in related applications or to widely accepted engineering principles, an identification of these structures, systems, or components along with a schedule showing how safety questions will be resolved prior to the initial receipt of spent fuel, high-level radioactive waste, and/or reactor-related GTCC waste as appropriate for storage at the ISFSI or MRS.

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15. Section 72.28 is amended by revising paragraph (d) to read as follows:

§ 72.28 Contents of application: Applicant's technical qualifications.

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(d) A commitment by the applicant to have and maintain an adequate complement of trained and certified installation personnel prior to the receipt of spent fuel, high-level radioactive waste, and/or reactor-related GTCC waste as appropriate for storage.

16. Section 72.30 is amended by revising paragraph (a) to read as follows:

§ 72.30 Financial assurance and recordkeeping for decommissioning.

(a) Each application under this part must include a proposed decommissioning plan that contains sufficient information on proposed practices and procedures for the decontamination of the site and facilities and for disposal of residual radioactive materials after all spent fuel, high-level radioactive waste, and reactor-related GTCC waste have been removed, in order to provide reasonable assurance that the decontamination and decommissioning of the ISFSI or MRS at the end of its useful life will provide adequate protection to the health and safety of the public. This plan must identify and discuss those design features of the ISFSI or MRS that facilitate its decontamination and decommissioning at the end of its useful life.

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17. Section 72.40 is amended by revising paragraph (b) to read as follows:

§ 72.40 Issuance of license.

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(b) A license to store spent fuel and reactor-related GTCC waste in the proposed ISFSI or to store spent fuel, high-level radioactive waste, and reactor-related GTCC waste in the proposed MRS may be denied if construction on the proposed facility begins before a finding approving issuance of the proposed license with any appropriate conditions to protect environmental values. Grounds for denial may be the commencement of construction prior to (1) a finding by the Director, Office of Nuclear Materials Safety and Safeguards or designee or (2) a finding after a public hearing by the presiding officer, Atomic Safety and Licensing Board, or the Commission acting as a collegial body, as appropriate, that the action called for is the issuance of the proposed license with any appropriate conditions to protect environmental values. This finding is to be made on the basis of information filed and evaluations made pursuant to subpart A of part 51 of this chapter or in the case of an MRS on the basis of evaluations made pursuant to sections 141(c) and (d) or 148(a) and (c) of NWPA (96 Stat. 2242, 2243, 42 U.S.C. 10161(c), (d); 101 Stat. 1330-235, 1330-236, 42 U.S.C. 10168(a), (c)), as appropriate, and after weighing the environmental, economic, technical and other benefits against environmental costs and considering available alternatives.

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18. Section 72.44 is amended by revising paragraphs (b)(4), (c)(3)(i), (c)(5), the introductory text of paragraph (d), and (g)(2) to read as follows:

§ 72.44 License conditions.

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(b) ★ ★ ★

(4) The licensee shall have an NRC-approved program in effect that covers the training and certification of personnel that meets the requirements of subpart I before the licensee may

receive spent fuel and/or reactor-related GTCC waste for storage at an ISFSI or the receipt of spent fuel, high-level radioactive waste, and/or reactor-related GTCC waste for storage at an MRS.

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(c) ★ ★ ★

(3) ★ ★ ★

(i) Inspection and monitoring of spent fuel, high-level radioactive waste, or reactor-related GTCC waste in storage;

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(5) *Administrative controls.* Administrative controls include the organization and management procedures, recordkeeping, review and audit, and reporting requirements necessary to assure that the operations involved in the storage of spent fuel and reactor-related GTCC waste in an ISFSI and the storage of spent fuel, high-level radioactive waste, and reactor-related GTCC waste in an MRS are performed in a safe manner.

(d) Each license authorizing the receipt, handling, and storage of spent fuel, high-level radioactive waste, and/or reactor-related GTCC waste under this part must include technical specifications that, in addition to stating the limits on the release of radioactive materials for compliance with limits of part 20 of this chapter and the "as low as is reasonably achievable" objectives for effluents, require that:

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(g) ★ ★ ★

(2) Construction of the MRS or acceptance of spent nuclear fuel, high-level radioactive waste, and/or reactor-related GTCC waste at the MRS is prohibited during such time as the repository license is revoked by the Commission or construction of the repository ceases.

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19. Section 72.52 is amended by revising paragraphs (b)(2), (c), and (e) to read as follows:

§ 72.52 Creditor regulations.

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(b) ★ ★ ★

(2) That no creditor so secured may take possession of the spent fuel and/or reactor-related GTCC waste under the provisions of this section before --

(i) The Commission issues a license authorizing possession; or

(ii) The license is transferred.

(c) Any creditor so secured may apply for transfer of the license covering spent fuel and/or reactor-related GTCC waste by filing an application for transfer of the license under § 72.50(b). The Commission will act upon the application under § 72.50(c).

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(e) As used in this section, "creditor" includes, without implied limitation --

(1) The trustee under any mortgage, pledge, or lien on spent fuel and/or reactor-related GTCC waste in storage made to secure any creditor;

(2) Any trustee or receiver of spent fuel and/or reactor-related GTCC waste appointed by a court of competent jurisdiction in any action brought for the benefit of any creditor secured by a mortgage, pledge, or lien;

(3) Any purchaser of the spent fuel and/or reactor-related GTCC waste at the sale thereof upon foreclosure of the mortgage, pledge, or lien or upon exercise of any power of sale contained therein; or

(4) Any assignee of any such purchaser.

20. Section 72.54 is amended by revising paragraph (c)(1) to read as follows:

§ 72.54 Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas.

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(c) ★ ★ ★

(1) Limit actions involving spent fuel, reactor-related GTCC waste, or other licensed material to those related to decommissioning; and

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21. Section 72.60 is amended by revising paragraph (c) to read as follows:

§ 72.60 Modification, revocation, and suspension of license.

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(c) Upon revocation of a license, the Commission may immediately cause the retaking of possession of all special nuclear material contained in spent fuel and/or reactor-related GTCC waste held by the licensee. In cases found by the Commission to be of extreme importance to the national defense and security or to the health and safety of the public, the Commission may cause the taking of possession of any special nuclear material contained in spent fuel and/or reactor-related GTCC waste held by the licensee before following any of the procedures provided under sections 551-558 of title 5 of the United States Code.

22. Section 72.72 is amended by revising paragraphs (a), (b), and (d) to read as follows:

§ 72.72 Material balance, inventory, and records requirements for stored materials.

(a) Each licensee shall keep records showing the receipt, inventory (including location), disposal, acquisition, and transfer of all special nuclear material with quantities as specified in § 74.13(a)(1). The records must include as a minimum the name of shipper of the material to the ISFSI or MRS, the estimated quantity of radioactive material per item (including special nuclear material in spent fuel and reactor-related GTCC waste), item identification and seal number, storage location, onsite movements of each fuel assembly or storage canister, and ultimate disposal. These records for spent fuel and reactor-related GTCC waste at an ISFSI or for spent fuel, high-level radioactive waste, and reactor-related GTCC waste at an MRS must be retained for as long as the material is stored and for a period of five years after the material is disposed of or transferred out of the ISFSI or MRS.

(b) Each licensee shall conduct a physical inventory of all spent fuel, high-level radioactive waste, and reactor-related GTCC waste containing special nuclear material meeting the requirements in paragraph (a) of this section at intervals not to exceed 12 months unless otherwise directed by the Commission. The licensee shall retain a copy of the current inventory as a record until the Commission terminates the license.

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(d) Records of spent fuel, high-level radioactive waste, and reactor-related GTCC waste containing special nuclear material meeting the requirements in paragraph (a) of this section must be kept in duplicate. The duplicate set of records must be kept at a separate location sufficiently remote from the original records that a single event would not destroy both sets of records. Records of spent fuel or reactor-related GTCC waste containing special nuclear material transferred out of an ISFSI or of spent fuel, high-level radioactive waste, or reactor-related GTCC waste containing special nuclear material transferred out of an MRS must be preserved for a period of five years after the date of transfer.

23. Section 72.75 is amended by revising the introductory text of paragraphs (b) and (c), paragraphs (b)(2), (b)(3), (b)(6), (d)(1)(iv), and (d)(2)(ii)(L) to read as follows:

§ 72.75 Reporting requirements for specific events and conditions.

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(b) Non-emergency notifications: Four-hour reports. Each licensee shall notify the NRC as soon as possible but not later than 4 hours after the discovery of any of the following events or conditions involving spent fuel, HLW, or reactor-related GTCC waste:

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(2) A defect in any storage structure, system, or component which is important to safety.

(3) A significant reduction in the effectiveness of any storage confinement system during use.

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(6) An unplanned fire or explosion damaging any spent fuel, HLW, and/or reactor-related GTCC waste, or any device, container, or equipment containing spent fuel, HLW, and/or reactor-related GTCC waste when the damage affects the integrity of the material or its container.

(c) Non-emergency notifications: Twenty-four hour reports. Each licensee shall notify the NRC within 24 hours after the discovery of any of the following events involving spent fuel, HLW, or reactor-related GTCC waste:

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(d) ★ ★ ★

(1) ★ ★ ★

(iv) The quantities, and chemical and physical forms of the spent fuel, HLW, or reactor-related GTCC waste involved; and

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(2) ★ ★ ★

(ii) ★ ★ ★

(L) The quantities, and chemical and physical forms of the spent fuel, HLW, or reactor-related GTCC waste involved;

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24. Section 72.76 is amended by revising paragraph (a) to read as follows:

§ 72.76 Material status reports.

(a) Except as provided in paragraph (b) of this section, each licensee shall complete, in computer-readable format, and submit to the Commission a material status report in accordance with instructions (NUREG/BR-0007 and NMMSS Report D-24 "Personal Computer Data Input for NRC Licensees"). Copies of these instructions may be obtained from the U.S. Nuclear Regulatory Commission, Division of Fuel Cycle Safety and Safeguards, Washington, DC 20555 -0001. These reports provide information concerning the special nuclear material possessed, received, transferred, disposed of, or lost by the licensee. Material status reports must be made as of March 31 and September 30 of each year and filed within 30 days after the end of the period covered by the report. The Commission may, when good cause is shown, permit a licensee to submit material status reports at other times. The Commission's copy of this report must be submitted to the address specified in the instructions. These prescribed computer-readable forms replace the DOE/NRC Form 742 which has been previously submitted in paper form.

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25. Section 72.78 is amended by revising paragraph (a) to read as follows:

§ 72.78 Nuclear material transfer reports.

(a) Except as provided in paragraph (b) of this section, whenever the licensee transfers or receives special nuclear material, the licensee shall complete in computer-readable format a Nuclear Material Transaction Report in accordance with instructions (NUREG/BR-0006 and NMMSS Report D-24, “Personal Computer Data Input for NRC Licensees"). Copies of these instructions may be obtained from the U.S. Nuclear Regulatory Commission, Division of Fuel Cycle Safety and Safeguards, Washington, DC 20555-0001. Each ISFSI licensee who receives spent fuel from a foreign source shall complete both the supplier's and receiver's portion of the Nuclear Material Transaction Report, verify the identity of the spent fuel, and indicate the results on the receiver's portion of the form. These prescribed computer-readable forms replace the DOE/NRC Form 741 which has been previously submitted in paper form.

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26. Section 72.80 is amended by revising paragraph (g) to read as follows:

§ 72.80 Other records and reports.

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(g) Each specific licensee shall notify the Commission, in accordance with § 72.4, of its readiness to begin operation at least 90 days prior to the first storage of spent fuel, high-level waste, or reactor-related GTCC waste in an ISFSI or an MRS.

27. Section 72.82 is amended by revising paragraphs (a) and (b) to read as follows:

§ 72.82 Inspections and tests.

(a) Each licensee under this part shall permit duly authorized representatives of the Commission to inspect its records, premises, and activities and of spent fuel, high-level

radioactive waste, or reactor-related GTCC waste in its possession related to the specific license as may be necessary to meet the objectives of the Act, including section 105 of the Act.

(b) Each licensee under this part shall make available to the Commission for inspection, upon reasonable notice, records kept by the licensee pertaining to its receipt, possession, packaging, or transfer of spent fuel, high-level radioactive waste, or reactor-related GTCC waste.

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28. Section 72.106 is amended by revising paragraph (b) to read as follows:

§ 72.106 Controlled area of an ISFSI or an MRS.

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(b) Any individual located on or beyond the nearest boundary of the controlled area may not receive from any design basis accident the more limiting of a total effective dose equivalent of 0.05 Sv (5 rem), or the sum of the deep-dose equivalent and the committed dose equivalent to any individual organ or tissue (other than the lens of the eye) of 0.5 Sv (50 rem). The lens dose equivalent may not exceed 0.15 Sv (15 rem) and the shallow dose equivalent to skin or any extremity may not exceed 0.5 Sv (50 rem). The minimum distance from the spent fuel, high-level radioactive waste, or reactor-related GTCC waste handling and storage facilities to the nearest boundary of the controlled area must be at least 100 meters.

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29. Section 72.108 is revised to read as follows:

§ 72.108 Spent fuel, high-level radioactive waste, or reactor-related Greater than Class C waste transportation.

The proposed ISFSI or MRS must be evaluated with respect to the potential impact on the environment of the transportation of spent fuel, high-level radioactive waste, or reactor-related GTCC waste within the region.

30. Section 72.120 is revised to read as follows:

§ 72.120 General considerations.

(a) As required by § 72.24, an application to store spent fuel or reactor-related GTCC waste in an ISFSI or to store spent fuel, high-level radioactive waste, or reactor-related GTCC waste in an MRS must include the design criteria for the proposed storage installation. These design criteria establish the design, fabrication, construction, testing, maintenance and performance requirements for structures, systems, and components important to safety as defined in § 72.3. The general design criteria identified in this subpart establish minimum requirements for the design criteria for an ISFSI or an MRS. Any omissions in these general design criteria do not relieve the applicant from the requirement of providing the necessary safety features in the design of the ISFSI or MRS.

(b) The ISFSI must be designed to store spent fuel and/or solid reactor-related GTCC waste.

(1) Reactor-related GTCC waste may not be stored in a cask that also contains spent fuel. This restriction does not include radioactive materials that are associated with fuel assemblies (e.g., control rod blades or assemblies, thimble plugs, burnable poison rod assemblies, or fuel channels);

(2) Liquid reactor-related GTCC wastes may not be received or stored in an ISFSI; and

(3) If the ISFSI is a water-pool type facility, the reactor-related GTCC waste must be in a durable solid form with demonstrable leach resistance.

(c) The MRS must be designed to store spent fuel, solid high-level radioactive waste, and/or solid reactor-related GTCC waste.

(1) Reactor-related GTCC waste may not be stored in a cask that also contains spent fuel. This restriction does not include radioactive materials associated with fuel assemblies (e.g., control rod blades or assemblies, thimble plugs, burnable poison rod assemblies, or fuel channels);

(2) Liquid high-level radioactive wastes or liquid reactor-related GTCC wastes may not be received or stored in an MRS; and

(3) If the MRS is a water-pool type facility, the high-level waste and reactor-related GTCC waste must be in a durable solid form with demonstrable leach resistance.

(d) The ISFSI or MRS must be designed, made of materials, and constructed to ensure that there will be no significant chemical, galvanic, or other reactions between or among the storage system components, spent fuel, reactor-related GTCC waste, and/or high level waste including possible reaction with water during wet loading and unloading operations or during storage in a water-pool type ISFSI or MRS. The behavior of materials under irradiation and thermal conditions must be taken into account.

(e) The NRC may authorize exceptions, on a case-by-case basis, to the restrictions in paragraphs (b) and (c) of this section regarding the commingling of spent fuel and reactor-related GTCC waste in the same cask.

31. Section 72.122 is amended by revising paragraphs (b)(2), (h)(2), (h)(5), (i) and (l) to read as follows:

§ 72.122 Overall requirements.

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(b) ★ ★ ★

(2)(i) Structures, systems, and components important to safety must be designed to withstand the effects of natural phenomena such as earthquakes, tornadoes, lightning, hurricanes, floods, tsunami, and seiches, without impairing their capability to perform their intended design functions. The design bases for these structures, systems, and components must reflect:

(A) Appropriate consideration of the most severe of the natural phenomena reported for the site and surrounding area, with appropriate margins to take into account the limitations of the data and the period of time in which the data have accumulated, and

(B) Appropriate combinations of the effects of normal and accident conditions and the effects of natural phenomena.

(ii) The ISFSI or MRS also should be designed to prevent massive collapse of building structures or the dropping of heavy objects as a result of building structural failure on the spent fuel, high-level radioactive waste, or reactor-related GTCC waste or on to structures, systems, and components important to safety.

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(h) ★ ★ ★

(2) For underwater storage of spent fuel, high-level radioactive waste, or reactor-related GTCC waste in which the pool water serves as a shield and a confinement medium for radioactive materials, systems for maintaining water purity and the pool water level must be designed so that any abnormal operations or failure in those systems from any cause will not cause the water level to fall below safe limits. The design must preclude installations of drains,

permanently connected systems, and other features that could, by abnormal operations or failure, cause a significant loss of water. Pool water level equipment must be provided to alarm in a continuously manned location if the water level in the storage pools falls below a predetermined level.

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(5) The high-level radioactive waste and reactor-related GTCC waste must be packaged in a manner that allows handling and retrievability without the release of radioactive materials to the environment or radiation exposures in excess of Part 20 limits. The package must be designed to confine the high-level radioactive waste for the duration of the license.

(i) *Instrumentation and control systems.* Instrumentation and control systems for wet spent fuel and reactor-related GTCC waste storage must be provided to monitor systems that are important to safety over anticipated ranges for normal operation and off-normal operation. Those instruments and control systems that must remain operational under accident conditions must be identified in the Safety Analysis Report. Instrumentation systems for dry storage casks must be provided in accordance with cask design requirements to monitor conditions that are important to safety over anticipated ranges for normal conditions and off-normal conditions. Systems that are required under accident conditions must be identified in the Safety Analysis Report.

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(l) *Retrievability.* Storage systems must be designed to allow ready retrieval of spent fuel, high-level radioactive waste, and reactor-related GTCC waste for further processing or disposal.

32. Section 72.128 is amended by revising the heading and the introductory text of paragraph (a) to read as follows:

§ 72.128 Criteria for spent fuel, high-level radioactive waste, reactor-related Greater than Class C waste, and other radioactive waste storage and handling.

(a) *Spent fuel, high-level radioactive waste, and reactor-related GTCC waste storage and handling systems.* Spent fuel storage, high-level radioactive waste storage, reactor-related GTCC waste storage and other systems that might contain or handle radioactive materials associated with spent fuel, high-level radioactive waste, or reactor-related GTCC waste, must be designed to ensure adequate safety under normal and accident conditions. These systems must be designed with --

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33. Section 72.140 is amended by revising paragraph (c)(2) to read as follows:

§ 72.140 Quality assurance requirements.

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(c) ★ ★ ★

(2) Each licensee shall obtain Commission approval of its quality assurance program prior to receipt of spent fuel and/or reactor-related GTCC waste at the ISFSI or spent fuel, high-level radioactive waste, and/or reactor-related GTCC waste at the MRS. Each licensee or applicant for a specific license shall obtain Commission approval of its quality assurance program before commencing fabrication or testing of a spent fuel storage cask.

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**PART 150--EXEMPTIONS AND CONTINUED REGULATORY AUTHORITY IN AGREEMENT STATES AND IN OFFSHORE WATERS UNDER SECTION 274**

34. The authority citation for Part 150 continues to read as follows:

**AUTHORITY:** Sec. 161, 68 Stat. 948, as amended, sec. 274, 73 Stat. 688 (42 U.S.C. 2201, 2021); sec. 201, 88 Stat. 1242, as amended (42 U.S.C. 5841).

Sections 150.3, 150.15, 150.15a, 150.31, 150.32 also issued under secs. 11e(2), 81, 68 Stat. 923, 935, as amended, secs. 83, 84, 92 Stat. 3033, 3039 (42 U.S.C. 2014e(2), 2111, 2113, 2114). Section 150.14 also issued under sec. 53, 68 Stat. 930, as amended (42 U.S.C. 2073). Section 150.15 also issued under secs. 135, 141, Pub. L. 97-425, 96 Stat. 2232, 2241 (42 U.S.C. 10155, 10161). Section 150.17a also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Section 150.30 also issued under sec. 234, 83 Stat. 444 (42 U.S.C. 2282).

35. Section 150.15 is amended by revising paragraph (a)(7) and adding a new paragraph (a)(8) to read as follows:

§ 150.15 Persons not exempt.

(a) ★ ★ ★

(7) The storage of:

(i) Spent fuel in an independent spent fuel storage installation (ISFSI) licensed under Part 72 of this chapter,

(ii) Spent fuel and high-level radioactive waste in a monitored retrievable storage installation (MRS) licensed under Part 72 of this chapter, or

(iii) Greater than Class C waste, as defined in Part 72 of this chapter, in an ISFSI or an MRS licensed under Part 72 of this chapter; the GTCC waste must originate in, or be used by, a facility licensed under Part 50 of this chapter.

(8) Greater than Class C waste, as defined in Part 72 of this chapter, that originates in, or is used by, a facility licensed under Part 50 of this chapter and is licensed under Part 30 and/or Part 70 of this chapter.

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Dated at Rockville, Maryland, this _____ day of _____, 2001.

For the Nuclear Regulatory Commission.

_____
Annette L. Vietti-Cook,
Secretary of the Commission.

Regulatory Analysis for Rulemaking on
Interim Storage for Greater than Class C Waste

## 1. STATEMENT OF THE PROBLEM AND OBJECTIVES

### BACKGROUND

The Nuclear Regulatory Commission received a petition for rulemaking dated November 2, 1995, submitted by Portland General Electric Company. The petition was docketed as PRM-72-2 and published in the Federal Register, with a 75-day comment period, on February 1, 1996 (61 FR 3619).

The petitioner requested that the NRC amend 10 CFR Part 72 to add the authority to store radioactive waste that exceeds the concentration limits of radionuclides established for Class C waste in 10 CFR 61.55.[1] This material is commonly referred to as "Greater than Class C" waste or GTCC waste. GTCC waste is generally unsuitable for near-surface disposal as low-level waste (LLW), even though it is considered as LLW. 10 CFR 61.55(a)(2)(iv) requires that this type of waste must be disposed of in a geologic repository unless approved for an alternative disposal method on a case-specific basis by the NRC.

The petitioner is an NRC-licensed utility responsible for the Trojan Nuclear Plant (Trojan). In the petition, the petitioner anticipated that during decommissioning of Trojan it would need to dispose of GTCC waste. The Trojan decommissioning plan specifies the transfer of spent reactor fuel, currently being stored in the spent fuel pool, to an onsite Independent Spent Fuel Storage Installation (ISFSI) licensed under 10 CFR Part 72. The petitioner requested that GTCC waste also be stored at the ISFSI pending its transfer to a permanent disposal facility. The petitioner suggested that, because the need to provide interim storage for GTCC waste is not specific to Trojan but is generic, the regulations in 10 CFR Part 72 should be amended to explicitly provide for the isolation and storage of GTCC waste in a licensed ISFSI.

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[1] In 10 CFR Part 61.55, “Waste Classification,” the NRC defines disposal requirements for three classes of low-level waste which are considered generally suitable for near-surface disposal. These are Class A, B, and C. Class C waste is required to meet the most rigorous disposal requirements.

The petitioner believes that storage of GTCC waste under 10 CFR Part 72 will ensure safe interim storage. This storage would provide identical public health and safety and environmental protection as required for spent fuel located at an ISFSI. For example, Subpart F of 10 CFR Part 72 (General Design Criteria) establishes design, fabrication, construction, testing, quality standards, maintenance, and performance requirements for structures, systems, and components important to safety.

The specific changes proposed in the petition would explicitly include interim storage of GTCC waste within the Purpose, Scope, and Definitions sections of 10 CFR Part 72 in order to treat GTCC waste in a similar manner to spent nuclear fuel. The revised definitions would only apply to the interim storage of GTCC waste under the authority of 10 CFR Part 72.

The notice of receipt of the petition for rulemaking invited interested persons to submit written comments concerning the petition. The NRC received six comment letters. Five comment letters were received from nuclear facilities and one from the Nuclear Energy Institute. The Nuclear Energy Institute provided another letter on this subject directly to the NRC Chairman on February 2, 1999, and the NRC responded on March 25, 1999. The comments were reviewed and considered in the development of NRC's decision on this petition. These comments are available in the NRC Public Document Room.

All six commenters supported the petition. Two of the commenters (Sacramento Municipal Utility District and Yankee Atomic Electric Company) are currently decommissioning their reactors.

As a result of the petition and the comment letters, the NRC developed a draft rulemaking plan to further consider the development of a rule that would meet the intent of the petition. In SECY-97-056, dated March 5, 1997, the NRC staff provided a draft rulemaking plan to the Commission outlining a rule that would modify 10 CFR Part 72 to allow storage of material, which when disposed of would be classified as GTCC waste, under the authority of 10 CFR Part 72 using criteria in this part. As discussed in this draft rulemaking plan, licensees are authorized to store GTCC waste pursuant to the regulations in 10 CFR Part 30 and/or Part 70. Therefore,

the draft rulemaking plan discussed an additional option to store GTCC waste under 10 CFR Part 72 while maintaining the option to store this waste using the authority of 10 CFR Parts 30 and 70. This plan was sent to the Agreement States for their comments on April 18, 1997. Five States provided comments -- Illinois, Maine, New York, Texas, and Utah.

The draft rulemaking plan did not require that the licensing jurisdiction for GTCC waste remain with NRC, but did suggest that Agreement States could voluntarily relinquish their licensing authority for GTCC waste stored at an ISFSI. The draft rulemaking plan requested Agreement State input relative to their likelihood of relinquishing authority for licensing when an ISFSI or a Monitored Retrievable Storage Installation (MRS) is involved in storing GTCC waste. Four of the five State commenters indicated that they would not voluntarily relinquish their authority.

The NRC published the proposed rule, "Interim Storage for Greater than Class C Waste" in the Federal Register on June 16, 2000 (65 FR 37712). The NRC received 18 comment letters on the proposed rule. These comments and responses are discussed in the "Comments on the Proposed Rule" section of the Federal Register notice publishing the final rule.

DISCUSSION

Current NRC regulations are not clear on the acceptability of storing reactor-related GTCC waste co-located at an ISFSI or an MRS. Co-location is the storage of spent fuel and other radioactive material in their respective separate containers. This situation has created confusion and uncertainty on the part of decommissioning reactor licensees and may create inefficiency and inconsistency in the way the NRC handles GTCC waste licensing matters.

Currently, 10 CFR Part 50 licensees (Domestic Licensing of Production and Utilization Facilities) are authorized to store all types of reactor-related radioactive materials, including material that, when disposed of, would be classified as GTCC waste. The GTCC waste portion is currently being stored either within the reactor vessel, in the spent fuel pool, or in a radioactive material storage area, pending development of a suitable permanent disposal facility. Reactor-related GTCC waste is typically in a solid form (i.e., mostly activated metals) such as reactor

vessel internals, nozzles, and in-core instrumentation. A small amount of GTCC waste may also be in the form of a sealed source that was used during the operation of the reactor. GTCC waste may consist of either byproduct material or special nuclear material. The authority to license the possession and storage of GTCC waste is contained within 10 CFR Part 30 for byproduct material and in 10 CFR Part 70 for special nuclear material. Under 10 CFR 50.52, the Commission may combine multiple licensing activities of an applicant that would otherwise be licensed individually in single licenses. Thus, the 10 CFR Part 50 license authorizing operation of production and utilization facilities currently includes, within it, the authorization to possess byproduct and special nuclear material that would otherwise need to be separately licensed under 10 CFR Parts 30 and/or 70.

Under current regulations, while a 10 CFR Part 50 license is in effect, a reactor licensee can store spent fuel generated at the reactor site under either a general license pursuant to 10 CFR 72.210 or a specific license pursuant to 10 CFR Part 72. In addition, the reactor licensee who has a 10 CFR Part 50 license, can store GTCC waste generated at the reactor site under the 10 CFR Parts 30 and 70 authority included in the 10 CFR Part 50 license.

Under current regulations, when the 10 CFR Part 50 license terminates, a reactor licensee can continue to store spent fuel generated at the reactor site under a specific license pursuant to 10 CFR Part 72. However, a general license under 10 CFR 72.210 would terminate because the 10 CFR Part 50 license has terminated, and the reactor licensee would need to apply for a specific license under 10 CFR Part 72 in order to continue to store spent fuel at the reactor site. Furthermore, the 10 CFR Parts 30 and 70 licenses included in the 10 CFR Part 50 licenses are also terminated when the 10 CFR Part 50 license terminates and the reactor licensee can only store GTCC waste by applying for a specific NRC license under 10 CFR Parts 30 and/or 70.

Under these revised regulations, when a 10 CFR Part 50 license is terminated, the reactor licensee will have the option to store GTCC waste under either 10 CFR Part 72 or under 10 CFR Parts 30 and 70. This regulation maintains Federal jurisdiction for GTCC waste under either approach (10 CFR Part 72 or 10 CFR Parts 30 and 70).

The changes in this rulemaking will allow a 10 CFR Part 72 specific licensee to co-locate reactor-related GTCC waste within an ISFSI or an MRS. Applicants for a specific license will be required to provide a Safety Analysis Report (SAR) which will describe how the GTCC waste is to be stored. The SAR would describe how structures, systems, and components that are important to safety are properly designed to allow the storage of GTCC waste within an ISFSI or MRS. The applicant shall ensure that the co-location of this radioactive material does not have an adverse affect on the safe storage of spent fuel and the operation of the ISFSI. Based on an acceptable review of the SAR, the NRC would issue a 10 CFR Part 72 specific license. Current 10 CFR Part 72 specific license holders would be required to submit an application to amend their 10 CFR Part 72 license, if they desire to store GTCC waste at their ISFSI.

Under one possible interpretation of current regulations, storage of GTCC waste at an ISFSI after termination of the reactor licensee's 10 CFR Part 50 license could lead to (1) NRC regulating the spent fuel at an ISFSI and (2) Agreement States regulating GTCC waste at the same location. The NRC has exclusive regulatory authority over a reactor licensee's storage of all radioactive material, including both spent fuel and of GTCC waste, during the term of the 10 CFR Part 50 license. Under this regulatory interpretation, once the 10 CFR Part 50 license is terminated an Agreement State would have authority for any GTCC waste stored by the utility.

The NRC believes that decommissioning activities at commercial nuclear power plants will generate relatively small volumes of GTCC waste relative to the amount of spent fuel that exists at these sites. GTCC waste exceeds the concentration limits of radionuclides established for Class C in §§ 61.55(a)(3)(ii), 61.55(a)(4)(iii), or 61.55(a)(5)(ii). GTCC waste is not generally acceptable for near-surface disposal at licensed low-level radioactive waste disposal facilities. There currently are no routine disposal options for GTCC waste. Because GTCC waste is unlikely to be disposed of at a LLW disposal site regulated under 10 CFR Part 61, the GTCC waste must be stored in the interim.

In general, reactor-related GTCC wastes can be grouped into two categories. The first is activated metals, irradiated metal components from nuclear reactors such as core shrouds, support plates, and core barrels. The second is process wastes such as filters and resins resulting from the operation and decommissioning of reactors. In addition, there may be a small

amount of GTCC waste generated from other activities associated with the reactor's operation (e.g., reactor start-up sources).

The Low-Level Radioactive Waste Policy Amendments Act of 1985 (Pub. L. 99-240) gave the Federal Government (U.S. Department of Energy (DOE)) the primary responsibility for developing a national strategy for disposal of GTCC waste. The Act also gave the NRC the licensing responsibility for a disposal facility for GTCC waste. Until a disposal facility is licensed, there is a need for interim storage of GTCC waste.

In developing storage criteria, the NRC was cognizant of both potential DOE disposal criteria to preclude unnecessarily allowing a storage option that is unacceptable for disposal and potential adverse interactions between spent fuel and various types of GTCC waste. The staff believes that properly addressing potential adverse conditions from commingling spent fuel with certain types of GTCC waste presents significant safety and technical issues. In addition, because the DOE has not yet identified such criteria for a disposal package, the NRC is concerned that storage of GTCC waste and spent fuel in the same container may be unacceptable for placement in the geologic repository. Therefore, the rule precludes the commingling of GTCC waste and spent fuel, except on a case-by-case basis, because the NRC desires to formulate regulations which both reduce radiological exposure and costs associated with repackaging the spent fuel and GTCC waste into two separate containers for disposal. Note that this in no way changes the current NRC and industry practice of allowing the commingling of spent fuel and certain specific components associated with, and integral to, spent fuel (e.g., burnable poison rod assemblies, control rod elements, and thimble plugs). In support of this rulemaking, the staff is developing Interim Staff Guidance for NRC staff and licensee use in determining storage criteria for various GTCC waste types.

This rule also precludes storage of liquid GTCC waste under 10 CFR Part 72. However, there are alternatives for a 10 CFR Part 50 licensee that desires to terminate their license yet still possesses liquid GTCC waste. These alternatives include the licensee's submission of an application for a 10 CFR Part 30 or 70 license, with the appropriate conditions for storage of liquid GTCC waste.

## 2. IDENTIFICATION AND ANALYSIS OF ALTERNATIVE APPROACHES

There are three alternatives the NRC considered to resolve the petition from the Portland General Electric Company. All three are protective of public health and safety, but differ in implementation and resources. For the reasons discussed, the NRC is implementing alternative three.

ALTERNATIVE 1: Deny the petition. The first option is to clarify that NRC's existing regulations allow storage of GTCC waste co-located at the licensees ISFSI under a 10 CFR Part 30 or Part 70 license conferred as part of their 10 CFR Part 50 license. However, upon termination of the 10 CFR Part 50 license it would be necessary to apply for a specific 10 CFR Part 30 or Part 70 license (or, under a possible interpretation of current regulations, under equivalent Agreement State 10 CFR Part 30 or Part 70 regulations) if GTCC waste is to remain at the ISFSI. Under this option, the petition would be denied because no changes to NRC's regulations are necessary to meet the specific requirements of the petitioner. The NRC could issue an Information Notice or issue a clarifying rule change to 10 CFR Part 72 that makes it clear that GTCC waste can be stored at an ISFSI under a 10 CFR Part 50 license during reactor operations, or under a 10 CFR Part 30 or Part 70 license either during operations or after the Part 50 license is terminated.

However, the applicable regulations in 10 CFR Parts 30 and 70 do not provide any explicit criteria for this unique waste type. Therefore, the licensee, in their license application, would need to propose site-specific criteria and the NRC would need to review each license application on a case-by-case basis or the NRC could develop generic criteria.

This alternative is the least resource intensive in the short term (i.e., no rulemaking would be undertaken), but the NRC believes there are several disadvantages. First, since each licensee would propose site-specific criteria, the licensing process could be more resource intensive for the licensee (need to develop appropriate criteria) and for the NRC to review and approve this criteria on a case-by-case basis. This could also result in numerous regulatory proposals throughout the country. Second, these site-specific criteria could be raised as issues during a potential licensing proceeding on the 10 CFR Part 72 license. And third, after

termination of the 10 CFR Part 50 license, licensees would need multiple licenses to store GTCC waste in the same location as spent fuel.

Although this alternative saves resources in the short term, the NRC believes that denying the petition would impose an unnecessary regulatory burden on reactor licensees and would require more NRC resources in the long-term than developing a rulemaking as discussed in alternatives two and three.

ALTERNATIVE 2: Change the regulations in 10 CFR Part 30, 70, and 72 to allow interim storage of NRC-licensed reactor-related GTCC waste within an ISFSI or MRS licensed by the NRC using criteria in 10 CFR Part 72. The alternative deals only with GTCC waste used or generated by a commercial power reactor licensed under 10 CFR Part 50 (i.e., not a research reactor) and does not include any other sources of GTCC waste. Storage and licensing requirements would be fully contained in 10 CFR Part 72. Interim storage of GTCC waste would be permitted under a 10 CFR Part 72 specific license. Allowing interim storage of GTCC waste under a 10 CFR Part 72 specific license would meet the request of the petitioner. However, one result of this alternative is the potential dual regulation of the licensed facility by both the NRC and an Agreement State. NRC believes having two agencies responsible for licensing and inspecting the same facility is not the most efficient use of resources. This disadvantage is further elaborated on in the discussion of alternative three which reserves all reactor-related GTCC waste licensing to the NRC. In a non-Agreement State only one license would be needed for storage of both spent fuel and GTCC waste under 10 CFR Part 72. Under this alternative, the NRC could change the compatibility level of portions 10 CFR Part 72 to allow Agreement States to license reactor-related GTCC waste in a manner similar to the NRC.

The NRC believes that this alternative does provide a more efficient means (relative to alternative one) of implementing storage of GTCC waste co-located at an ISFSI or an MRS than what is currently permitted by the regulations. That is, revising the regulations to allow storage of GTCC waste under 10 CFR Part 72 does not preclude storing it under 10 CFR Part 30 or Part 70. 10 CFR Part 72 was developed specifically for an ISFSI and an MRS. The licensing process will be clearer and more straightforward by having all related licensing under one part. Criteria in 10 CFR Part 72 would be used for the GTCC waste. Although the GTCC waste

would meet requirements in 10 CFR Part 72, the individual waste types are different than spent fuel. The GTCC waste is in a solid form (i.e., mostly activated metals) such as reactor internals, nozzles, and in-core instrumentation. Specific criteria will be added to 10 CFR Part 72 to preclude storage of liquid GTCC waste within an ISFSI or an MRS. However, there are alternatives for a 10 CFR Part 50 licensee that desires to terminate their license yet still possess liquid GTCC waste. These alternatives include the licensee's submission of an application for a 10 CFR Part 30 or 70 license, with the appropriate conditions for storage of liquid GTCC waste, or the licensee's submission of a request for an exemption from the requirements of 10 CFR Part 72.

Minor changes are being made to 10 CFR Parts 30 and 70 to exempt 10 CFR Part 72 licensees who possess to store power reactor-related GTCC waste within an ISFSI or MRS from the requirements in 10 CFR Parts 30 and 70 following termination of their 10 CFR Part 50 license. This will prevent the need to obtain multiple licenses.

ALTERNATIVE 3: Change the regulations in 10 CFR Parts 30, 70, 72 and 150 to allow interim storage of NRC-licensed reactor-related GTCC waste within an ISFSI or MRS licensed only by the NRC. This alternative is the same as alternative two except that licensing the storage of reactor-related GTCC waste would be reserved to the NRC. Therefore, an additional change is being proposed for 10 CFR Part 150. Licensing would be reserved to the NRC regardless of whether the GTCC waste was licensed under 10 CFR Part 30, 70, or 72.

Because GTCC waste is initially under Federal jurisdiction while the reactor facility is operated and the ultimate disposal of GTCC waste is also under Federal jurisdiction, the NRC believes that the interim period between termination of a reactor license and ultimate disposal should also remain under Federal jurisdiction. GTCC waste will likely end up in a geologic repository with spent fuel. Spent fuel can be stored in an ISFSI or a MRS pending ultimate disposal. Therefore, for efficiency and consistency of licensing, the NRC believes that 10 CFR Part 72 should be modified to also allow storage of GTCC waste within these facilities under NRC's jurisdiction. The existing regulatory scheme, which would allow for Federal-State-Federal jurisdiction over the generation, interim storage, and disposal of GTCC, waste is an inefficient approach. It is inefficient for NRC and an Agreement State to both spend scarce

resources to license and inspect an ISFSI that stores both spent fuel and GTCC waste. This alternative will allow the applicant to obtain only one 10 CFR Part 72 license for storage of spent fuel and GTCC waste. The same exemption from 10 CFR Parts 30 and 70 as discussed in alternative 2 would be used. Additionally,10 CFR Part 150 would require conforming changes to clarify NRC's exclusive jurisdiction over reactor-related GTCC waste.

## 3. ESTIMATE AND EVALUATION OF VALUES AND IMPACTS

The NRC has not quantitatively evaluated the cost savings of alternative three. Alternative three has the advantages of providing the most consistent licensing while also being the least costly option in the long term. The NRC estimates that about one staff year will be needed to develop this rulemaking. There are currently 31 ISFSIs either operating or under development. The NRC spends an estimated 20 staff years evaluating specific licenses and amendments under 10 CFR Part 72. The incremental resources to include the review of GTCC waste within a license application or amendment is estimated to be 120 hours (0.06 staff years). To review a separate 10 CFR Part 30 or Part 70 license, with unknown criteria, could take significantly longer. If a significant number of ISFSIs apply for a 10 CFR Part 72 license to store GTCC waste, the savings to NRC would easily outweigh the resources to complete this rulemaking. The savings to licensees is not estimated, but given that the six industry commenters on the petition and the 10 industry commenters on the proposed rule all supported this petition, the NRC believes that the benefit to licensees is also significant.

## 4. DECISION RATIONALE

The NRC is amending 10 CFR Parts 30, 70, 72 and 150. The NRC believes that this rule will have the following benefits: (1) allowing licensees the option of storing GTCC waste under 10 CFR Part 72, while not precluding licensees from developing their own criteria as allowed under existing regulations; (2) providing that for reactor-related GTCC waste the licensing will be with the Federal government from generation through disposal; (3) allowing reactor licensees to have only one 10 CFR Part 72 license for both their spent fuel and GTCC waste; and (4) minimizing the use of total NRC, Agreement State, and licensee resources by having only one agency license and inspect ISFSIs.

In summary, the NRC believes that this rule change will allow a more cost effective means of storing this waste with no significant impact to public health and safety.

## 5. IMPLEMENTATION

The final rule should be completed and become effective during FY 2001.

Final Environmental Assessment and Finding of
No Significant Environmental Impact

Final Rule: Interim Storage for Greater than Class C Waste

## I. THE PROPOSED ACTION

The Nuclear Regulatory Commission (NRC) is amending its regulations to allow licensing for the interim storage of Greater than Class C (GTCC) waste in a manner that is consistent with licensing the interim storage of spent fuel and will maintain Federal jurisdiction for storage of reactor-related GTCC waste. The final rule will only apply to the interim storage of GTCC waste generated or used by commercial nuclear power plants. These amendments will also simplify and clarify the licensing process. The final rule will grant in part and deny in part a petition for rulemaking submitted by Portland General Electric Company (PRM-72-2).

## II. BACKGROUND

The Nuclear Regulatory Commission received a petition for rulemaking dated November 2, 1995, submitted by Portland General Electric Company. The petition was docketed as PRM-72-2 and published in the Federal Register, with a 75-day comment period, on February 1, 1996 (61 FR 3619).

The petitioner requested that the NRC amend 10 CFR Part 72 to add the authority to store radioactive waste that exceeds the concentration limits of radionuclides established for Class C waste in 10 CFR 61.55.[1] This material is commonly referred to as "Greater than Class C" waste or GTCC waste. GTCC waste is generally unsuitable for near-surface disposal as low-level waste (LLW), even though it is considered as LLW. 10 CFR 61.55(a)(2)(iv)

[1] In 10 CFR Part 61.55, “Waste Classification,” the NRC defines disposal requirements for three classes of low-level waste which are considered generally suitable for near-surface disposal. These are Class A, B, and C. Class C waste is required to meet the most rigorous disposal requirements.

requires that this type of waste must be disposed of in a geologic repository unless approved for an alternative disposal method on a case-specific basis by the NRC.

The petitioner is an NRC-licensed utility responsible for the Trojan Nuclear Plant (TNP). In the petition, the petitioner anticipated that during decommissioning of TNP it would need to dispose of GTCC waste. The TNP decommissioning plan specifies the transfer of spent reactor fuel, currently being stored in the spent fuel pool, to an onsite Independent Spent Fuel Storage Installation (ISFSI) licensed under 10 CFR Part 72. The petitioner requested that GTCC waste also be stored at the ISFSI pending its transfer to a permanent disposal facility. The petitioner suggested that, because the need to provide interim storage for GTCC waste is not specific to TNP but is generic, the regulations in 10 CFR Part 72 should be amended to explicitly provide for the isolation and storage of GTCC waste in a licensed ISFSI.

The petitioner believes that storage of GTCC waste under 10 CFR Part 72 will ensure safe interim storage. This storage would provide identical public health and safety and environmental protection as required for spent fuel located at an ISFSI. For example, Subpart F of 10 CFR Part 72 (General Design Criteria) establishes design, fabrication, construction, testing, quality standards, maintenance, and performance requirements for structures, systems, and components important to safety.

The specific changes proposed in the petition would explicitly include interim storage of GTCC waste within the Purpose, Scope, and Definitions sections of 10 CFR Part 72 in order to treat GTCC waste in a similar manner to spent nuclear fuel. The revised definitions would only apply to the interim storage of GTCC waste under the authority of 10 CFR Part 72.

The notice of receipt of the petition for rulemaking invited interested persons to submit written comments concerning the petition. The NRC received six comment letters. Five comment letters were received from nuclear facilities and one from the Nuclear Energy Institute. The Nuclear Energy Institute provided another letter on this subject directly to the NRC Chairman on February 2, 1999, and the NRC responded on March 25, 1999. The comments were reviewed and considered in the development of NRC's decision on this petition. These comments are available in the NRC Public Document Room.

All six commenters supported the petition. Two of the commenters (Sacramento Municipal Utility District and Yankee Atomic Electric Company) are currently decommissioning their reactors.

As a result of the petition and the comment letters, the NRC developed a draft rulemaking plan to further consider the development of a rule that would meet the intent of the petition. In SECY-97-056, dated March 5, 1997, the NRC staff provided a draft rulemaking plan to the Commission outlining a rule that would modify 10 CFR Part 72 to allow storage of material, which when disposed of would be classified as GTCC waste, under the authority of 10 CFR Part 72 using the performance criteria of this part. As discussed in this draft rulemaking plan, licensees are authorized to store GTCC waste pursuant to the regulations in 10 CFR Part 30 and/or Part 70. Therefore, the draft rulemaking plan discussed an additional option to store GTCC waste under 10 CFR Part 72 while maintaining the option to store this waste using the authority of 10 CFR Parts 30 and 70. This plan was sent to the Agreement States for their comments on April 18, 1997. Five States provided comments -- Illinois, Maine, New York, Texas, and Utah.

The draft rulemaking plan did not require that the licensing jurisdiction for GTCC waste remain with NRC, but did suggest that Agreement States could voluntarily relinquish their licensing authority for GTCC waste stored at an ISFSI. The draft rulemaking plan requested Agreement State input relative to their likelihood of relinquishing authority for licensing when an ISFSI or a Monitored Retrievable Storage Installation (MRS) is involved in storing GTCC waste. Three of the four State commenters indicated that they would not voluntarily relinquish their authority.

The NRC published the proposed rule, “Interim Storage for Greater than Class C Waste” in the Federal Register on June 16, 2000 (65 FR 37712). The NRC received 18 comment letters on the proposed rule. These comments and responses are discussed in the “Comments on the Proposed Rule” section of the Federal Register notice publishing the final rule.

## III. THE NEED FOR THE PROPOSED ACTION

Current NRC regulations are not clear on the acceptability of storing reactor-related GTCC waste co-located at an ISFSI or an MRS. Co-location is the storage of spent fuel and other radioactive material in their respective separate containers. This situation has created confusion and uncertainty on the part of decommissioning reactor licensees and may create inefficiency and inconsistency in the way the NRC handles GTCC waste licensing matters.

Currently, 10 CFR Part 50 licensees (Domestic Licensing of Production and Utilization Facilities) are authorized to store all types of reactor-related radioactive materials, including material that, when disposed of, would be classified as GTCC waste. The GTCC waste portion is currently being stored either within the reactor vessel, in the spent fuel pool, or in a radioactive material storage area, pending development of a suitable permanent disposal facility. Reactor-related GTCC waste is typically in a solid form (i.e., mostly activated metals) such as reactor vessel internals, nozzles, and in-core instrumentation. A small amount of GTCC waste may also be in the form of a sealed source that was used during the operation of the reactor. GTCC waste may consist of either byproduct material or special nuclear material. The authority to license the possession and storage of GTCC waste is contained within 10 CFR Part 30 for byproduct material and in 10 CFR Part 70 for special nuclear material. Under 10 CFR 50.52, the Commission may combine multiple licensing activities of an applicant that would otherwise be licensed individually in single licenses. Thus, the 10 CFR Part 50 license authorizing operation of production and utilization facilities currently includes, within it, the authorization to possess byproduct and special nuclear material that would otherwise need to be separately licensed under 10 CFR Parts 30 and/or 70.

Under current regulations, while a 10 CFR Part 50 license is in effect, a reactor licensee can store spent fuel generated at the reactor site under either a general license pursuant to 10 CFR 72.210 or a specific license pursuant to 10 CFR Part 72. In addition, the reactor licensee who has a 10 CFR Part 50 license, can store GTCC waste generated at the reactor site under the 10 CFR Parts 30 and 70 authority included in the 10 CFR Part 50 license.

Under current regulations, when the 10 CFR Part 50 license terminates, a reactor licensee can continue to store spent fuel generated at the reactor site under a specific license pursuant to 10 CFR Part 72. However, a general license under 10 CFR 72.210 would terminate because the 10 CFR Part 50 license has terminated, and the reactor licensee would need to apply for a specific license under 10 CFR Part 72 in order to continue to store spent fuel at the reactor site. Furthermore, the 10 CFR Parts 30 and 70 licenses included in the 10 CFR Part 50 licenses are also terminated when the 10 CFR Part 50 license terminates and the reactor licensee can only store GTCC waste by applying for a specific NRC license under 10 CFR Parts 30 and/or 70.

Under the draft final regulations, when a 10 CFR Part 50 license is terminated, the reactor licensee will need only to apply for an NRC license, but will have the option to store GTCC waste under either 10 CFR Part 72 or under 10 CFR Parts 30 and 70. This draft final regulation maintains Federal jurisdiction for GTCC waste under either approach (10 CFR Part 72 or 10 CFR Parts 30 and 70).

The changes in this rulemaking will allow a 10 CFR Part 72 specific licensee to co-locate reactor-related GTCC waste within an ISFSI or an MRS. Applicants for a specific license will be required to provide a Safety Analysis Report (SAR) which will describe how the GTCC waste is to be stored. The SAR would describe how structures, systems, and components that are important to safety are properly designed to allow the storage of GTCC waste within an ISFSI or MRS. The applicant shall ensure that the co-location of this radioactive material does not have an adverse affect on the safe storage of spent fuel and the operation of the ISFSI. Based on an acceptable review of the SAR, the NRC would issue a 10 CFR Part 72 specific license. Current 10 CFR Part 72 specific license holders would be required to submit an application to amend their 10 CFR Part 72 license, if they desire to store GTCC waste at their ISFSI.

Under one possible interpretation of existing regulations, storage of GTCC waste at an ISFSI after termination of the reactor licensee's 10 CFR Part 50 license could lead to (1) NRC regulating the spent fuel at an ISFSI and (2) Agreement States regulating GTCC waste at the same location. The NRC has exclusive regulatory authority over a reactor licensee's storage of all radioactive material, including both spent fuel and of GTCC waste, during the term of the

10 CFR Part 50 license. Under this regulatory interpretation, once the 10 CFR Part 50 license is terminated an Agreement State would have authority for any GTCC waste stored by the utility.

The NRC believes that decommissioning activities at commercial nuclear power plants will generate relatively small volumes of GTCC waste relative to the amount of spent fuel that exists at these sites. GTCC waste exceeds the concentration limits of radionuclides established for Class C in §§ 61.55(a)(3)(ii), 61.55(a)(4)(iii), or 61.55(a)(5)(ii). GTCC waste is not generally acceptable for near-surface disposal at licensed low-level radioactive waste disposal facilities. There currently are no routine disposal options for GTCC waste. Because GTCC waste is unlikely to be disposed of at a LLW disposal site regulated under 10 CFR Part 61, the GTCC waste must be stored in the interim.

In general, reactor-related GTCC wastes can be grouped into two categories. The first is activated metals, irradiated metal components from nuclear reactors such as core shrouds, support plates, and core barrels. The second is process wastes such as filters and resins resulting from the operation and decommissioning of reactors. In addition, there may be a small amount of GTCC waste generated from other activities associated with the reactor's operation (e.g., reactor start-up sources).

The Low-Level Radioactive Waste Policy Amendments Act of 1985 (Pub. L. 99-240) gave the Federal Government (U.S. Department of Energy (DOE)) the primary responsibility for developing a national strategy for disposal of GTCC waste. The Act also gave the NRC the licensing responsibility for a disposal facility for GTCC waste. Until a disposal facility is licensed, there is a need for interim storage of GTCC waste.

In developing storage criteria, the NRC was cognizant of both potential DOE disposal criteria to preclude unnecessarily allowing a storage option that is unacceptable for disposal and potential adverse interactions between spent fuel and various types of GTCC waste. The staff believes that properly addressing potential adverse conditions from commingling spent fuel with certain types of GTCC waste presents significant safety and technical issues. In addition, because the DOE has not yet identified such criteria for a disposal package, the NRC is concerned that storage of GTCC waste and spent fuel in the same container may be

unacceptable for placement in the geologic repository. Therefore, the rule precludes the commingling of GTCC waste and spent fuel, except on a case-by-case basis, because the NRC desires to formulate regulations which both reduce radiological exposure and costs associated with repackaging the spent fuel and GTCC waste into two separate containers for disposal. Note that this in no way changes the current NRC and industry practice of allowing the commingling of spent fuel and certain specific components associated with, and integral to, spent fuel (e.g., burnable poison rod assemblies, control rod elements, and thimble plugs). In support of this rulemaking, the staff is developing Interim Staff Guidance for NRC staff and licensee use in determining storage criteria for various GTCC waste types.

This rule also precludes storage of liquid GTCC waste under 10 CFR Part 72. However, there are alternatives for a 10 CFR Part 50 licensee that desires to terminate their license yet still possesses liquid GTCC waste. These alternatives include the licensee's submission of an application for a 10 CFR Part 30 or 70 license, with the appropriate conditions for storage of liquid GTCC waste.

## IV. ALTERNATIVES TO THE PROPOSED ACTION

There are three alternatives the NRC considered to resolve the petition from the Portland General Electric Company. All three are protective of public health and safety, but differ in implementation and resources. For the reasons discussed, the NRC is implementing alternative three.

ALTERNATIVE 1: Deny the petition. The first option is to clarify that NRC's existing regulations allow storage of GTCC waste co-located at the licensees ISFSI under a 10 CFR Part 30 or Part 70 license conferred as part of their 10 CFR Part 50 license. However, upon termination of the 10 CFR Part 50 license it would be necessary to apply for a specific 10 CFR Part 30 or Part 70 license (or, under a possible interpretation of current regulations, under equivalent Agreement State 10 CFR Part 30 or Part 70 regulations) if GTCC waste is to remain at the ISFSI. Under this option, the petition would be denied because no changes to NRC's regulations are necessary to meet the specific requirements of the petitioner. The NRC could issue an Information Notice or issue a clarifying rule change to 10 CFR Part 72 that makes it clear that

GTCC waste can be stored at an ISFSI under a 10 CFR Part 50 license during reactor operations, or under a 10 CFR Part 30 or Part 70 license either during operations or after the Part 50 license is terminated.

However, the applicable regulations in 10 CFR Parts 30 and 70 do not provide any explicit criteria for this unique waste type. Therefore, the licensee, in their license application, would need to propose site-specific criteria and the NRC would need to review each license application on a case-by-case basis or the NRC could develop generic criteria.

This alternative is the least resource intensive in the short term (i.e., no rulemaking would be undertaken), but the NRC believes there are several disadvantages. First, since each licensee would propose site-specific criteria, the licensing process could be more resource intensive for the licensee (need to develop appropriate criteria) and for the NRC to review and approve this criteria on a case-by-case basis. This could also result in numerous regulatory proposals throughout the country. Second, these site-specific criteria could be raised as issues during a potential licensing proceeding on the 10 CFR Part 72 license. And third, after termination of the 10 CFR Part 50 license, licensees would need multiple licenses to store GTCC waste in the same location as spent fuel.

Although this alternative saves resources in the short term, the NRC believes that denying the petition would impose an unnecessary regulatory burden on reactor licensees and would require more NRC resources in the long-term than developing a rulemaking as discussed in alternatives two and three.

ALTERNATIVE 2: Change the regulations in 10 CFR Part 30, 70, and 72 to allow interim storage of NRC-licensed reactor-related GTCC waste within an ISFSI or MRS licensed by the NRC, using criteria in 10 CFR Part 72. The alternative deals only with GTCC waste used or generated by a commercial power reactor licensed under 10 CFR Part 50 (i.e., not a research reactor) and does not include any other sources of GTCC waste. Storage and licensing requirements would be fully contained in 10 CFR Part 72. Interim storage of GTCC waste would be permitted under a 10 CFR Part 72 specific license. Allowing interim storage of GTCC waste under a 10 CFR Part 72 specific license would meet the request of the petitioner. However, one result of this

alternative is the potential dual regulation of the licensed facility by both the NRC and an Agreement State. NRC believes having two agencies responsible for licensing and inspecting the same facility is not the most efficient use of resources. This disadvantage is further elaborated on in the discussion of alternative three which reserves all reactor-related GTCC waste licensing to the NRC. In a non-Agreement State only one license would be needed for storage of both spent fuel and GTCC waste under 10 CFR Part 72. Under this alternative, the NRC could change the compatibility level of portions 10 CFR Part 72 to allow Agreement States to license reactor-related GTCC waste in a manner similar to the NRC.

The NRC believes that this alternative does provide a more efficient means (relative to alternative one) of implementing storage of GTCC waste co-located at an ISFSI or an MRS than what is currently permitted by the regulations. That is, revising the regulations to allow storage of GTCC waste under 10 CFR Part 72 does not preclude storing it under 10 CFR Part 30 or Part 70. 10 CFR Part 72 was developed specifically for an ISFSI and an MRS. The licensing process will be clearer and more straightforward by having all related licensing under one part. Criteria in 10 CFR Part 72 would be used for the GTCC waste. Although the GTCC waste would meet requirements in 10 CFR Part 72, the individual waste types are different than spent fuel. The GTCC waste is in a solid form (i.e., mostly activated metals) such as reactor internals, nozzles, and in-core instrumentation. Specific criteria will be added to 10 CFR Part 72 to preclude storage of liquid GTCC waste within an ISFSI or an MRS. However, there are alternatives for a 10 CFR Part 50 licensee that desires to terminate their license yet still possess liquid GTCC waste. These alternatives include the licensee's submission of an application for a 10 CFR Part 30 or 70 license, with the appropriate conditions for storage of liquid GTCC waste, or the licensee's submission of a request for an exemption from the requirements of 10 CFR Part 72.

Minor changes would be made to 10 CFR Parts 30 and 70 to exempt 10 CFR Part 72 licensees who possess to store power reactor-related GTCC waste within an ISFSI or MRS from the requirements in 10 CFR Parts 30 and 70 following termination of their 10 CFR Part 50 license. This would prevent the need to obtain multiple licenses.

ALTERNATIVE 3: Change the regulations in 10 CFR Parts 30, 70, 72 and 150 to allow interim storage of NRC-licensed reactor-related GTCC waste within an ISFSI or MRS licensed only by the NRC. This alternative is the same as alternative two except that licensing the storage of reactor-related GTCC waste would be reserved to the NRC. Therefore, an additional change is being proposed for 10 CFR Part 150. Licensing would be reserved to the NRC regardless of whether the GTCC waste was licensed under 10 CFR Part 30, 70, or 72.

Because GTCC waste is initially under Federal jurisdiction while the reactor facility is operated and the ultimate disposal of GTCC waste is also under Federal jurisdiction, the NRC believes that the interim period between termination of a reactor license and ultimate disposal should also remain under Federal jurisdiction. GTCC waste will likely end up in a geologic repository with spent fuel. Spent fuel can be stored in an ISFSI or a MRS pending ultimate disposal. Therefore, for efficiency and consistency of licensing, the NRC believes that 10 CFR Part 72 should be modified to also allow storage of GTCC waste within these facilities under NRC's jurisdiction. The existing regulatory scheme, which could allow for Federal-State-Federal jurisdiction over the generation, interim storage, and disposal of GTCC, waste is an inefficient approach. It is inefficient for NRC and an Agreement State to both spend scarce resources to license and inspect an ISFSI that stores both spent fuel and GTCC waste. This alternative will allow the applicant to obtain only one 10 CFR Part 72 license for storage of spent fuel and GTCC waste. The same exemption from 10 CFR Parts 30 and 70 as discussed in alternative 2 would be used. Additionally,10 CFR Part 150 would require conforming changes to clarify NRC's exclusive jurisdiction over reactor-related GTCC waste.

## V. REGULATORY ACTION

The NRC is modifying 10 CFR Parts 30, 70, 72 and 150 as discussed in alternative three.

This rule will allow storage of reactor-related GTCC waste under a 10 CFR Part 72 specific license. The changes will modify 10 CFR Part 72 to allow storage of GTCC waste under this part using the appropriate criteria of 10 CFR Part 72. This will provide a more efficient means of implementing what is essentially already permitted by the regulations (storage of

GTCC waste co-located at an ISFSI or an MRS). That is, revising the regulations to allow storage of reactor-related GTCC waste under 10 CFR Part 72 does not preclude the option of storing it under a 10 CFR Part 30 or 70 license.

This rule will permit the co-locating of spent fuel and solid, reactor-related, GTCC waste in different casks and containers within an ISFSI or MRS; but it will not permit the commingling of spent fuel and GTCC waste in the same storage cask, except for specific GTCC waste components associated with, and integral to, the spent fuel. Additionally, this rule will not permit the storage of liquid, reactor-related, GTCC waste. However, a licensee or applicant may submit information to the NRC applying for approval for commingling of spent fuel and solid, reactor-related, GTCC waste in the same storage cask, or storing liquid, reactor-related, GTCC waste. The licensee or applicant must demonstrate that there will be no adverse effects on public health and safety and the environment from this type of storage. The NRC will review and approve these types of requests on a case-by-case basis. When storing spent fuel and GTCC waste in different containers within an ISFSI or MRS, the licensee or applicant must provide a description of how storage of the GTCC waste will not have an adverse effect on the ISFSI or MRS or on public health and safety and the environment.

Without this change, after termination of the 10 CFR Part 50 license, a licensee would need multiple licenses -- 10 CFR Part 72 for spent fuel and 10 CFR Part 30 or 70 (or both) for GTCC waste. Having one license for the ISFSI (or MRS) under 10 CFR Part 72 will be simpler and less burdensome for both licensees and the NRC, relative to approval and management.

The NRC believes that the concept proposed in the petition of storing GTCC waste under the provisions of 10 CFR Part 72 is valid. However, the NRC also believes that the method proposed by the petitioner, that is modifying the definition of spent fuel to include GTCC waste, could lead to confusion. Modifying the definition of spent fuel would only apply to spent fuel as defined under 10 CFR Part 72 and would not be technically accurate.

Therefore, the NRC is adding a definition of GTCC waste within § 72.3 that will be consistent with the intent of 10 CFR 61.55. The NRC has evaluated 10 CFR Part 72 to determine which sections need to be modified to accommodate storage of solid GTCC waste

co-located with spent fuel within an ISFSI or an MRS. The majority of the changes to 10 CFR Part 72 are simply to add the term “GTCC waste” to the appropriate sections and paragraphs (typically immediately after the terms “spent fuel or high-level waste”). Section 72.120 would be revised to require that GTCC waste be in a solid form.

Minor changes are being made to 10 CFR Parts 30 and 70 to exempt 10 CFR Part 72 licensees who possess to store power reactor-related GTCC waste within an ISFSI or MRS from the requirements in 10 CFR Parts 30 and 70 following termination of their 10 CFR Part 50 license. This will prevent the need to obtain multiple licenses.

10 CFR Part 150 is being modified to be consistent with the changes in 10 CFR Part 72. The change to 10 CFR Part 150 (Exemptions and Continued Regulatory Authority in Agreement States and in Offshore Waters Under Section 274) will specify that any GTCC waste that is stored in an ISFSI or an MRS is under NRC jurisdiction. This part will also be modified to state that licensing the storage of any GTCC waste that originates in, or is used by, a facility licensed under 10 CFR Part 50 (a power reactor) is the responsibility of the NRC.

The NRC will continue to recover costs for generic activities related to the storage of GTCC waste under 10 CFR Part 72 through 10 CFR Part 171 annual fees assessed to the spent fuel storage/reactor decommissioning class of licensees. Subsequent to issuing the final revision to 10 CFR Part 72, 10 CFR Part 170 will be amended to clarify that full costs fees will be assessed for amendments and inspections related to the storage of GTCC waste under 10 CFR Part 72.

## VI. ENVIRONMENTAL IMPACTS OF PROPOSED ACTION

The Commission has determined, under the National Environmental Policy Act of 1969 (NEPA), as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule is not a major Federal action significantly affecting the quality of the human environment and therefore, an environmental impact statement (EIS) is not required.

This Environmental Assessment (EA) was prepared in accordance with the Commission's regulations in 10 CFR Part 51 to implement the requirements of NEPA. The NRC evaluation has led to the conclusion that the revisions to 10 CFR Parts 30, 70, 72 and 150 will not result in any activity that significantly affects the quality of the human environment. The revisions will provide reactor licensees an additional option of storing GTCC waste under a specific 10 CFR Part 72 license using criteria within that part. Interim storage of GTCC waste at an ISFSI or an MRS will be in a passive mode with no human intervention needed for safe storage.

The purpose of this EA is to provide the rationale that supports the finding that this rulemaking will have no significant environmental effects. This rule deals with the establishment of licensing criteria which will allow for the storage of reactor-related GTCC waste within an ISFSI or MRS. The rule will use criteria within 10 CFR Part 72. The criteria within 10 CFR Part 72 was established for spent nuclear fuel and HLW and the accompanying environmental reviews were performed for spent fuel and HLW. These analyses concluded that storage of spent fuel and HLW using the approved criteria would not result in any activity that significantly affects the quality of the human environment.

As described in NUREG 1092, entitled, "Environmental Assessment for 10 CFR Part 72 Licensing Requirements for the Independent Storage of Spent Fuel and High-Level Radioactive Waste," dated August 1984, the NRC staff concluded that storage of spent fuel and HLW within ISFSIs would not result in any activity that significantly affects the quality of the human environment. From a review of this NUREG and current NRC and industry practice of allowing the commingling of spent fuel and certain specific components associated with, and integral to, spent fuel (e.g., burnable poison rod assemblies, control rod elements, and thimble plugs), the staff has concluded that using 10 CFR Part 72 criteria has no significant environmental impacts. This review considered functional areas of heat generation, criticality, structural stability, and radiation risk from dry storage within the ISFSI.

GTCC wastes from reactors are, for the most part, generated from two procedures -- operating wastes and decommissioning wastes. During both operating and decommissioning, GTCC wastes include activated metals and process waste. Operating GTCC waste is

generated periodically during routine operations. These wastes become available for storage at the end of each refueling cycle. Decommissioning wastes are generated when a reactor closes, a one time event that generates the majority of GTCC waste. In addition, there may be a small amount of GTCC waste generated from other activities associated with the reactor's operation (e.g., reactor start-up sources).

Activated metal consists of irradiated metal components from the reactor vessel. This internal hardware, typically stainless steel, (i.e., core shroud, support plates, and in-core instruments, etc.) absorbs neutrons during reactor operations and becomes highly radioactive. The bulk of the total activity in activated metals is from short-lived radionuclides cobalt 60, a gamma emitter, and iron 55, a beta emitter. The longer-lived radionuclides, primarily nickel 63, nickel 59, and niobium 94, determine classification. The radionuclides that determine classification are measured by indirect means. There are trace amounts of fissile material (i.e., special nuclear material) contained in the activated metal.

Process wastes classification is determined primarily by cesium 137, a gamma emitter, carbon 14 and strontium 90, beta emitters, and alpha-emitting transuranics. Process wastes generally do not contain much, if any, nickel, niobium, or fissile material.

In 1993, there was approximately 16 cubic meters of GTCC waste from nuclear reactors, containing approximately $1.5 \times 10^5$ TeraBecquerels (TBq) [4 million curies].[2] By 2055, it is estimated that there will be approximately 1300 cubic meters of GTCC waste containing approximately $3.3 \times 10^6$ TBq [88 million curies]. By comparison, it is estimated that there will be approximately 63,000 cubic meters of commercial spent fuel containing over $1.3 \times 10^8$ TBq [3.5 billion curies].[3] Over 90 percent of the 88 million GTCC waste curies are projected to come from activities associated with decommissioning nuclear reactors. Also, pressurized water

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[2] Greater-Than-Class C Low-Level Radioactive Waste Characterization: Estimated Volumes, Radionuclide Activities, and Other Characteristics. DOE/LLW-114, Revision 1, September 1994.

[3] Draft Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County Nevada. Volume II, Appendix A, July 1999.

reactors (PWRs) will produce about 10 times the number of curies of GTCC waste that boiling water reactors (BWRs) will produce.

Therefore, over an estimated 40 year life of a either a PWR or a BWR, GTCC waste will comprise less than three percent of the volume and curie content versus the volume and curie content of the spent fuel generated.

The radioactive isotope contents of GTCC waste in activated metals is a subset of the isotopes contained within spent fuel and HLW that can be currently stored in an ISFSI. Because of the limited amount of material that will undergo radioactive decay, the amount of decay heat generated is less than similar aged spent fuel. As described above, the total TBq (curie) content and volume of GTCC waste is significantly less than the spent fuel and HLW already scheduled to be stored within ISFSIs licensed under 10 CFR Part 72.

Similar to activated metals, the process GTCC waste is a subset of the isotopes contained within spent fuel and HLW. The NRC is requiring that process waste be solidified as a requirement for storage within the ISFSI or MRS. The process material is significantly less than the amount of GTCC waste from reactor components.

The NRC finds for the following reasons that storing NRC-licensed reactor-related GTCC waste using 10 CFR Part 72 criteria has no significant environmental impacts.

(1) The smaller source term available for release from normal operations, or as a result of an accident, involving GTCC waste as compared to spent fuel or HLW;

(2) The smaller total volume and curie content of GTCC waste as compared to spent fuel and HLW;

(3) The previous findings related to the environmental impacts in NUREG-0575, “Final Generic Environmental Impact Statement on Handling and Storage of Spent Light Water Power Reactor Fuel,” dated August 1979, and NUREG-1092, “Environmental

Assessment for 10 CFR Part 72 “Licensing Requirements for the Independent Storage of Spent Fuel and High-Level Radioactive Waste”; and

(4) GTCC waste is already being safely stored by 10 CFR Part 50 licensees. Re-licensing of this material under a 10 CFR Part 72 specific license requires an approved SAR. The approval process requires that each application or amendment be individually reviewed and approved before storage would be allowed under a specific 10 CFR Part 72 license.

## VII. FINDING OF NO SIGNIFICANT IMPACT

Based on the foregoing environmental assessment, the NRC concludes that this rulemaking, entitled “Interim Storage for Greater Than Class C Waste,” will not have a significant incremental effect on the quality of the human environment. Therefore, the NRC has determined that an environmental impact statement is not necessary for this rulemaking.

The documents referenced may be examined at the NRC Public Document Room, 11555 Rockville Pike, Rockville, MD.

## VIII. AGENCIES AND PERSONS CONTACTED

The draft EA was developed as part of the proposed rule in which public comments were solicited on the entire rulemaking package. No comments were received related to the draft EA. No additional agencies or persons outside the NRC were contacted in connection with the preparation of this EA.