

# **NRC INSPECTION MANUAL**

NMSS/DFM

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INSPECTION MANUAL CHAPTER 2691

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TECHNICAL BASIS FOR THE INDEPENDENT SPENT FUEL STORAGE INSTALLATION  
INSPECTION PROGRAM

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## 2691-01 PURPOSE

This Inspection Manual Chapter (IMC) describes the basis for the U.S. Nuclear Regulatory Commission's (NRC's) development of the Independent Spent Fuel Storage Installation (ISFSI) inspection program as implemented under IMC 2690 "Inspection Program for Dry Storage of Spent Reactor Fuel at Independent Spent Fuel Storage Installations and for 10 CFR 71 Transportation Packagings."

## 2691-02 OBJECTIVES

02.01 To provide a summary of the history of ISFSIs and to document a clear basis for effectively evaluating and assessing activities associated with dry cask storage including construction, preoperational testing, canister loading and unloading, and cask storage.

02.02 To discuss the significant developmental steps for the ISFSI inspection program, which included a relative risk assessment and establishment of safety focus areas.

02.03 To describe in general how the ISFSI inspection program is structured and provides for consistent and reliable implementation of a risk-informed performance-based inspection program.

## 2691-03 RESPONSIBILITIES AND AUTHORITIES

### 03.01 Director, Division of Fuel Management (DFM).

Responsible for setting the vision and/or direction for the ISFSI inspection program structure and implementation.

### 03.02 Chief, Inspection and Oversight Branch (IOB), DFM.

Responsible for making changes to this and other applicable IMCs or ISFSI inspection documents. Responsible for ensuring any changes to ISFSI inspection guidance are reviewed and considered for possible inclusion in this IMC basis document.

## 2691-04 OVERVIEW

04.01 History of ISFSIs in the United States. In 1974, the Atomic Energy Commission (predecessor of the NRC) issued a regulatory guide on storage of spent fuel in ISFSIs, Regulatory Guide (RG) 3.24, "Guidance on the License Application, Siting, Design, and Plant Protection for an Independent Spent Fuel Storage Installation," (ML13038A434) which then supported Title 10 of the *Code of Federal Regulations* (10 CFR) Part 70. A few years later, in 1977, termination of proceedings on reprocessing and recycling of plutonium in light water reactors accentuated the need for interim storage of the growing accumulation of spent fuel discharged from nuclear power plants. The problem was addressed in a draft environmental impact statement issued by the NRC staff in March 1978. The statement indicated that commercial spent fuel generated through the year 2000 could be accommodated in a safe and environmentally sound manner either by modifying storage pools at reactor sites or by providing independent storage facilities.

In November 1980, the staff issued 10 CFR Part 72, "Licensing Requirements for the Storage of Spent Fuel in an Independent Spent Fuel Storage Installation," superseding 10 CFR Part 70 and RG 3.24 with respect to the regulation of spent fuel storage in ISFSIs. The staff developed 10 CFR Part 72 specifically for spent fuel storage outside reactor storage basins, i.e., spent fuel pools. The regulation covers both wet and dry storage systems for ISFSIs that can be located either at reactor sites or away from them.

During the early 1980s a method called "dry cask storage" emerged as the leading possibility for storage of spent fuel. This method was viewed as more flexible and economically approachable than wet storage. This was due, in part, to Department of Energy research on a steel-lined concrete silo and to the development in the Federal Republic of Germany of a new transportation and storage cask made of nodular cast iron. During 1982 and 1983, the NRC received topical reports from local and international companies on the design of nodular cast iron dry storage casks. The NRC staff reviewed the reports for completeness with respect to RG 3.48, "Standard Format and Content for the Safety Analysis Report for an Independent Spent Fuel Storage Installation or Monitored Retrievable Storage Installation (Dry Storage)," Revision 0, (ML12220A065) and technical adequacy. The Virginia Electric Power Company (VEPCO) submitted an application on October 13, 1982 under the provisions of 10 CFR Part 72 to permit the dry storage of spent fuel in casks at its Surry nuclear station. Additionally, the 1982 Nuclear Waste Policy Act (NWPA) defined the Federal Government's overall program for the management of spent fuel and high-level waste from commercial nuclear power operations. The NWPA specified both policy and action on interim spent fuel storage and pending development of a repository or a monitored retrievable storage installation (MRS). In preparation for licensing activities related to MRS, the NRC staff reviewed the existing regulatory basis for handling spent fuel storage functions and decided to modify the 10 CFR Part 72 to include the licensing of both storage of power reactor spent fuel and high-level radioactive waste.

By 1985, letters of approval accompanied by safety evaluation reports were issued for some topical reports. The General Nuclear Systems (GNS), Inc., a partnership of GNS and Chem-Nuclear Corp., Castor V design was proposed for use by Surry Nuclear Power Station under a license application that was being reviewed by the NRC staff. Two licenses for dry spent fuel storage were issued in 1986 under 10 CFR Part 72. One of those licenses was issued to VEPCO for its Surry nuclear power plant authorizing storage of spent fuel in GNS Castor V /21 casks. In July 1990, the NRC published the final rule in the Federal Register to revise 10 CFR Part 72 (55 FR 29191). The revision established a new Subpart K to 10 CFR Part 72 entitled, "General License for Storage of Spent Fuel at Power Reactor Sites," and a new Subpart L to 10 CFR Part 72 entitled, "Approval of Spent Fuel Storage Casks." Subpart K gave all utilities with a 10 CFR Part 50 license a general license that allowed them to store their spent fuel in a dry storage system (DSS) which has been reviewed and approved by the NRC and listed in 10 CFR 72.214, "List of approved spent fuel storage casks." In April 1993, Palisades Nuclear Power Plant became the first utility to use a general license as provided by the revised 10 CFR Part 72. Palisades Nuclear Power Plant used the NRC-approved VSC-24 DSS (Certificate of Compliance No. 1007).

04.02 Philosophy of the ISFSI Inspection Program. The ISFSI inspection program evaluates licensee performance in the area of spent fuel storage in ISFSIs. The program activities are intended to: (1) verify that licensees implement a program that provides reasonable assurance of adequate protection and safe storage of spent nuclear fuel; (2) augment the security, decommissioning, and reactor oversight process (ROP) inspection programs by reviewing

ISFSI-specific activities; and (3) provide inspection guidance using a risk-informed performance-based approach.

- a. The program is risk-informed. The ISFSI inspection program is implemented as a matter of prudence based on several factors including defense-in-depth and operational experience rather than in sole response to a quantitative analysis of accident probabilities. Accordingly, the program is risk-informed, rather than risk-based, and does not rely solely on numerical estimates of risk metrics. It should be noted that the Quantitative Safety Objectives of core damage frequency (CDF) and large early release frequency (LERF) only directly apply to operating reactors (NUREG-0880, "Safety Goals for Nuclear Power Plant Operation", Revision 1).

In 2019, the ISFSI inspection program enhancement working group re-examined and recommended a re-design of the ISFSI inspection program with an approach of qualitatively ranking dry cask storage loading activities on their relative-risk of radiation dose to workers and the public; from the likelihood of occurrence and consequences of postulated accidents and events; and the defense-in-depth assumptions made by licensees in safety analyses. Five safety focus areas were identified that capture the most safety significant aspects of ISFSI operation. These five areas are occupational exposure, public exposure, fuel management, confinement/canister integrity, and impact to plant operation (for operating reactor plants only).

- b. Aspects of the ISFSI inspection program are coordinated with inspections under the IMC 2500 series programs. The IMC 2690, "Inspection Program for Storage of Spent Reactor Fuel and Reactor Related Greater than Class C Waste at Independent Spent Fuel Storage Installations and for 10 CFR Part 71 Transportation Packagings," inspection program is designed to minimize areas of inspection program overlap for ISFSIs that are not classified as Away-From-Reactor (AFR). The programs identified with overlap include radiation protection under the inspection procedure (IP) 71124, "Radiation Safety – Public and Occupational," inspection procedure series, problem identification and resolution under most general procedures and IP 71152, "Problem Identification and Resolution," fuel movement and heavy lifts under IP 71111.20, "Refueling and Other Outage Activities," emergency preparedness under IP 71114, "Reactor Safety Emergency Preparedness," inspection procedure series, and security and safeguards under IP 71130, "Security," inspection procedure series and IP 81311, "Physical Security Requirements for Independent Spent Fuel Storage Installations." ISFSI inspection activities in these areas augment the existing inspection programs and are focused on ISFSI-specific activities. Activities relating to the ISFSI (e.g., DSS fabrication, support pad construction, dry runs, fuel selection, welding, backfilling, and transport) and the above areas unique to ISFSI operations will be reviewed by inspectors qualified or cross qualified in accordance with IMC 1246, Appendix B02, "Training Requirements and Qualification Journal for Spent Fuel Storage and Transportation Inspector," Appendix B03, "Training Requirements and Qualification Journal for Independent Spent Fuel Storage Installation Inspector," or IMC 2690, Appendix C, as applicable. Inspection activities under IMC 2690 for AFRs encompass the full scope of license programs.

04.03 Development of the ISFSI Inspection Program. The 2019 ISFSI inspection program enhancement working group evaluated and applied a holistic approach to determine the scope of the ISFSI program. Available spent fuel risk analyses and nuclear byproduct material radiological safety significance factors (NUREG/CR-6642, "Risk Analysis and Evaluation of

Regulatory Options for Nuclear Byproduct Materials Systems”) were evaluated, as well as subject matter expertise, and operating experience gained from ISFSI inspections since the beginning of the program. This holistic approach provides a risk-informed inspection program that does not rely solely on numerical estimates of risk metrics.

The risk-informed evaluation of the inspection program included two fundamental parts:

- a. A relative-risk assessment of ISFSI related activities (Section 04.04). This allowed for an understanding of the relative risks of one activity compared to another.
- b. Safety focus areas (Section 04.05). The approach to regulatory oversight identified five safety focus areas to receive emphasis in order to provide reasonable assurance of adequate protection.

04.04 Relative Risk Assessment. Reports that address some of the risks of dry cask storage include NUREG-1864, “A Pilot Probabilistic Risk Assessment of a Dry Cask Storage System at a Nuclear Power Plant”, and Electric Power Research Institute (EPRI) Technical Report 1009691, “Probabilistic Risk Assessment (PRA) of Bolted Storage Casks: Updated Quantification and Analysis Report.” The authors of NUREG-1864 state that the scope of the NUREG was solely to demonstrate a methodology to generate PRA models and their limited (i.e., case-specific) application. Therefore, the authors of NUREG-1864 state that no inferences or conclusions should be drawn with regard to the study’s regulatory implications. However, general concepts and conclusions were used to help risk-inform the ISFSI inspection program.

Due to the decay of radionuclides that occurs during storage of the fuel in the spent fuel pool and the lack of energy necessary to create a motive force as found in an operating reactor core, the latent cancer risk to the public due to ISFSI related activities is considerably lower compared with that of an operating nuclear plant. Both analyses determined that the latent cancer risk to the public from ISFSI operations is very low. The top three accident sequences discussed in NUREG-1864 all included heavy load lifting activities. The EPRI technical report accident sequence analysis found that a high temperature fire during cask transfer constituted the highest risk to the public. Inspection focus on heavy loads and transient combustibles is appropriate given the analyses in these reports to ensure minimal risk to the public. Neither study evaluated occupational worker risk or potential fuel management issues.

NUREG/CR-6642 provided risk insights into nuclear byproduct materials systems. While the study did not include dry cask storage, insights from similar systems were gathered. Only the evaluations of irradiators and fixed radiographic installations were considered in assessing the applicability to a risk-informed ISFSI inspection program. These systems share characteristics of dry cask storage operations in source strength and in some operations. For example, self-shielded irradiators are similar in concept to DSSs given that they include passive storage and monitoring operations. Fixed radiographic installations and other irradiators including pool irradiators compare in concept to DSS loading and unloading operations. The study considered different risk factors including individual normal risks, industry risks, and accident risks. An assigned priority number was given to each type of inspection, denoting the average number of years between inspections. A priority two is given to fixed radiographic installations and other irradiators greater than 10,000 curies, meaning that the licensee is generally inspected on a two-year frequency. A priority five is given to a self-shielded irradiator greater than 10,000 curies, meaning that the licensee is generally inspected on a five-year frequency. This information was used to support development of the periodic ISFSI inspection frequency.

04.05 Safety Focus Areas. Five safety focus areas were established to monitor licensee performance to provide reasonable assurance of adequate protection.

- Occupational exposure
- Public exposure
- Fuel management
- Confinement/canister integrity
- Impact to plant operation

These focus areas are structured as a performance expectation and address those areas of greatest safety significance for a dry cask storage program. The occupational and public exposure safety focus areas encompass the direct impact of dry cask operations on workers and the public. The fuel management and confinement/canister integrity safety focus areas are those that encompass radiological barriers to workers and the public. The impact to plant operation safety focus area encompasses activities that may impact site operations and the CDF and LERF risk metrics of the NRC's Safety Goal Policy for operating reactors. These safety focus areas relate to several areas of review of design criteria for safety protection systems in NUREG-2215, "Standard Review Plan for Spent Fuel Dry Storage Systems and Facilities," including confinement, radiation protection, criticality, and thermal.

a. Occupational and Public Exposure

Radiological risks to workers, and less so to the public, exist. Radiation exposure from spent fuel operations could be considerable (dose rates from a fully loaded, shielded canister can potentially be in the hundreds of mrem/hour and in the thousands of mrem/hour for a fully loaded, unshielded canister). The potential for radiological exposures, including unintended radiological exposures, is risk significant during spent fuel operations. Consequently, NRC inspection oversight of licensee operations in areas with potentially increased exposure rates to the public or workers is warranted. Operations where there is a potential for doses to individuals that are a significant fraction of regulatory limits, warrant greater assurance that preventative measures are properly implemented by the licensee, as required.

b. Fuel Management and Confinement/Canister Integrity

The purpose of this focus area is to protect the public and workers from radioactive releases and/or high radiation doses caused by accidents or events. In an ISFSI, there are two barriers between the fuel and the public. The first barrier is the fuel cladding. Maintaining the integrity of this barrier prevents the release of radioactive fission products to the inside of the cask or canister. The second barrier is the DSS confinement boundary. Even if significant quantities of radionuclides are released from the fuel cladding, maintaining the integrity of the DSS confinement boundary will prevent radioactive releases to the environment. The typically long decay time of the radionuclides in spent fuel prior to the fuel being used in ISFSI operations results in a source term well below the operating reactor LERF risk metric threshold for a prompt fatality off-site. Therefore, a DSS release resulting in a prompt fatality event is not considered. Criticality in a loaded DSS is unlikely given the need for multiple unauthorized events and/or changes. Proper fuel selection and placement for loading are important to maintain heat loading requirements. Excessive heat loading could result in damage to fuel cladding and/or a loss of DSS confinement boundary integrity.

The reliability of lifting equipment is essential in preventing load drops with a potential to damage both the spent fuel cladding and the cask or canister.

c. Impact to Plant Operation

Dry cask storage operations have the potential to affect safety-related and risk-significant non-safety-related structures, systems, and components for operating reactors. Many DSS loadings occur while a reactor unit is operating at full power. Activities inside the reactor or fuel buildings (e.g., lifting of heavy loads or movement of spent fuel) may have the potential to impact risk-significant reactor structures, systems, and components. This potential impact could affect the CDF and LERF risk metrics. Also, transport of the DSS to the ISFSI pad has the potential to impact (i.e., cause inoperability) of underground risk-significant piping and electric cables if they are not properly protected from loads moving on the ground above.

04.06 Inspection Activities. The ISFSI inspections provide reasonable assurance of adequate protection by review and observation of licensee activities. The ISFSI inspection procedures have been written to focus on the most risk-significant activities. These activities, which are related to the five safety focus areas listed above, were ranked based on relative risk, subject matter expertise, previous ISFSI operating experience, and information from NUREG-1864 and NUREG/CR-6642.

If the inspector concludes that licensee performance is satisfactory for a focus area, the inspection effort expended in reviewing that focus area will be considered complete. If significant or multiple performance deficiencies are identified for a given focus area the inspector should conduct a more thorough review of that aspect of the licensee's program to determine the causes for the performance deficiencies, as prescribed by the inspection procedure. The increased inspection effort may include additional review of selected activities and documents.

ISFSI inspections can be divided into four phases:

- Phase 1 – Design, fabrication, and DSS construction
- Phase 2 – Pad construction and preoperational testing
- Phase 3 – Spent fuel loading, unloading, and storage operations
- Phase 4 – Storage monitoring at an AFR

The purpose of ISFSI inspections is to determine by direct observation and independent evaluation whether the licensee is conducting ISFSI activities in accordance with the commitments and requirements described in the safety analysis report (SAR), the NRC's corresponding safety evaluation report (SER), 10 CFR Part 72 and, as applicable, the Certificate of Compliance (CoC) or the site-specific license, technical specifications (TSs) and the Quality Assurance Program (QAP).

Reactor site ISFSIs are normally incorporated into 10 CFR Part 50 programs (e.g., quality assurance, radiation protection, and emergency preparedness) and reviewed under the IMC 2500 series inspection programs. Consequently, for an ISFSI associated with an operating or decommissioning Part 50 reactor site, the IMC 2690 inspection program is designed to minimize areas of inspection overlap. Inspection efforts should be focused on activities specifically related to the ISFSI, which are unique and should be reviewed in depth by a qualified ISFSI inspector. For those areas with inspection overlap, the ISFSI inspection program provides for



verification that the ISFSI has been properly incorporated into the existing 10 CFR Part 50 licensee programs, such that a full reinspection of the licensee's or applicant's programs is not required.

The specific purpose of inspection of each phase is described below:

Phase 1 – Design, fabrication, and DSS construction

Applicable IPs:

- 60851, "Design Control of Independent Spent Fuel Storage Installation Components"
- 60852, "Independent Spent Fuel Storage Installation Component Fabrication by Outside Fabricators"
- 60853, "On-Site Fabrication of Components and Construction of an Independent Spent Fuel Storage Installation"
- 60857, "Review of 10 CFR 72.48 Evaluations"

The design of DSSs rely on the assumptions made and the component specifications in its licensing basis documents. Changes to the design of the DSS may impact important to safety (ITS) components and their functions. The safety functions of a DSS rely on quality component design and quality manufacturing. The purpose of these inspections is to provide reasonable assurance that the design, fabrication, and construction of a DSS and its components, including any changes, are consistent with the design and licensing basis and the applicable regulations.

Phase 2 – Pad construction and preoperational testing

Applicable IPs:

- 60853, "On-Site Fabrication of Components and Construction of an Independent Spent Fuel Storage Installation"
- 60854, "Preoperational Testing of an Independent Spent Fuel Storage Installation"
- 60856, "Review of 10 CFR 72.212(b) Evaluations"
- 60857, "Review of 10 CFR 72.48 Evaluations"

One of the purposes of these inspections is to provide reasonable assurance that the design and construction of the ISFSI storage pad, including any changes, are consistent with the licensing basis. Another purpose is to provide reasonable assurance that the licensee is ready to operate an ISFSI by performing preoperational inspections during licensee performance of dry runs as required by the applicable CoC. Preoperational inspections are a proactive method to assess the licensee's program including human performance, procedural controls, radiological controls, and site-specific implementation before operation. Establishing adequate procedures, analyses, and programs to implement design and licensing basis requirements to ensure safe dry cask storage operations is a risk-significant activity.

Phase 3 – Spent fuel loading, unloading, and storage operations

Applicable IPs:

- 60855, "Operation of an Independent Spent Fuel Storage Installation"
- 60857, "Review of 10 CFR 72.48 Evaluations"

Spent fuel loading and unloading operations represent the most risk-significant ISFSI activities. The NRC inspects the loading of the first canister at a site and should inspect subsequent loadings, if the licensee plans to perform loading activities during the inspection cycle, to have reasonable assurance that the licensee is operating the ISFSI safely. If the licensee performs an extended loading campaign, typically after permanent cessation of operations with the intent to completely offload the spent fuel pool to an ISFSI, then inspections of the loading activities should be performed at an increased frequency as discussed in Section 04.07 of this IMC. If no loadings are scheduled during the inspection cycle, then a monitoring only inspection should be performed of storage operations.

#### Phase 4 – Storage Monitoring of an AFR ISFSI

Applicable IPs:

- 60858, “Away-From-Reactor Independent Spent Fuel Storage Installation Inspection Guidance”
- 60857, “Review of 10 CFR 72.48 Evaluations”

When compared with loading and unloading operations, storage operations of loaded DSSs has much lower risk. Inspections of storage operations serve to ensure adequate implementation of the safety and associated programs for continued storage of spent fuel at the AFR ISFSI.

AFR ISFSI sites require the inspection of each of the programmatic areas that support operation of the ISFSI because programmatic oversight is not performed by another NRC inspection program. In addition, AFR ISFSI inspections can include observation of emergency preparedness exercises to ensure the licensee maintains their response capability.

04.07 Inspection Frequency. The inspection frequencies for region-led ISFSI inspections listed in IMC 2690, which include the Phase 2 through 4 inspections, and the level of inspection effort in the individual procedures were developed from a risk-informed evaluation of the program. Phase 2 inspections are generally as needed before a new type of DSS is put into operation at a facility. Regional staff should be aware of Phase 2 activities planned for each licensee on a rolling three-year schedule. Given the resources estimated to perform Phase 2 inspections, the region may need to request additional FTE resources to accomplish the inspection program requirements. Additional resources may include support for inspection activities or review of technical issues.

Phase 3 inspections of the operation of an ISFSI are conducted for the loading of the first cask or canister of each new type of DSS design at a facility. The subsequent loading campaign triennial inspection frequency was selected to provide a sufficient examination of dry cask storage activities in order to monitor licensee performance. As discussed in Section 04.04, risk insights were used from NUREG/CR-6642 that provided information on nuclear byproduct materials systems. When comparing ISFSIs to byproduct material systems with risk insights based on the passive nature of the safety systems of ISFSIs, previous inspection results, and the need for flexibility in the program to time inspections with loading operations and/or the ROP triennial cycle, a triennial inspection frequency was selected. In the triennial frequency, the inspection will be performed at least once during the three-year cycle, which aligns with the ROP triennial inspection cycles as defined in IMC 2515, “Light-Water Reactor Inspection Program – Operations Phase,” Attachment 1. The level-of-effort is derived from a risk-informed performance-based ranking of inspection activities and the average estimated time to review

and observe the most risk-significant activities.

In addition, recent operational experience for reactor sites performing extended ISFSI loading campaigns was evaluated. These campaigns typically occur after permanent cessation of operations, with the intent to completely offload the spent fuel pool to dry cask storage. Periodic oversight is necessary during these extended loading campaigns, due to the significant increase in the number of canisters being loaded compared to a typical loading campaign at an operating reactor site. The additional oversight provides the opportunity for the timely evaluation of operational and programmatic activities at decommissioning facilities where staffing may be reduced. The frequency of these inspections will be quarterly throughout the extended loading campaign, and once the extended loading campaign is completed, inspections will return to the triennial frequency.

The Phase 4 inspection frequency for AFR ISFSIs was also selected to be triennial. In addition to the considerations above as described for Phase 3, as discussed in Section 04.06, programmatic areas are now reviewed, such as emergency preparedness, radiation protection, and quality assurance, which includes corrective actions and audits, that were normally inspected by other inspection programs for ISFSIs at a reactor facility. In addition, AFR ISFSI inspections can include regular observation of emergency preparedness exercises to ensure the licensee maintains their response capability.

#### 2691-05 REFERENCES

IMC 2515, "Light-Water Reactor Inspection Program – Operations Phase"

IMC 2561, "Decommissioning Power Reactor Inspection Program"

IMC 2690, "Inspection Program for Storage of Spent Reactor Fuel and Reactor Related Greater than Class C Waste at Independent Spent Fuel Storage Installations and for 10 CFR Part 71 Transportation Packagings"

IMC 0610, "Nuclear Material Safety and Safeguards Inspection Reports"

IMC 0611, "Power Reactor Inspection Reports"

IMC 0612, "Issue Screening"

IMC 0617, Appendix E, "Minor Examples of Vendor and QA Implementation Findings"

IMC 1245, Appendix C1, "Reactor Operations Inspector Technical Proficiency Training and Qualification Journal"

IMC 1245, Appendix C2, "Reactor Engineering Inspector Technical Proficiency Training and Qualification Journal"

IMC 1246, Appendix B02, "Training Requirements and Qualification Journal for Spent Fuel Storage and Transportation Inspector"

IMC 1246, Appendix B03, "Training Requirements and Qualification Journal for Independent Spent Fuel Storage Installation Inspector"

IP 60851, "Design Control of ISFSI Components"

IP 60852, "ISFSI Component Fabrication by Outside Fabricators"

IP 60853, "On-site Fabrication of Components and Construction of an Independent Spent Fuel Storage Installation"

IP 60854, "Preoperational Testing of an Independent Spent Fuel Storage Installation"

IP 60855, "Operation of an Independent Spent Fuel Storage Installation"

IP 60856, "Review of 10 CFR 72.212(b) Evaluations"

IP 60857, "Review of 10 CFR 72.48 Evaluations"

IP 60858, "Away-From-Reactor Independent Spent Fuel Storage Installation Inspection Guidance"

IP 71111.20, "Refueling and Other Outage Activities"

IP 71114, "Reactor Safety Emergency Preparedness"

IP 71124, "Radiation Safety – Public and Occupational"

IP 71130, "Security"

IP 71152, "Problem Identification and Resolution"

IP 81311, "Physical Security Requirements for Independent Spent Fuel Storage Installations"

EPRI Technical Report 1009691, "Probabilistic Risk Assessment (PRA) of Bolted Storage Casks: Updated Quantification and Analysis Report"

NUREG-0516, "1978 NRC Annual Report," published February 1979

NUREG-0880, "Safety Goals for Nuclear Power Plant Operation", Revision 1

NUREG-0920, "1981 NRC Annual Report," published June 1982

NUREG-1145, Vol. 2, 1985 NRC Annual Report," published June 1986

NUREG-1145, Vol. 3, "1986 NRC Annual Report," published June 1987

NUREG-1864, "A Pilot Probabilistic Risk Assessment of a Dry Cask Storage System at a Nuclear Power Plant," March 2007

NUREG-2215, "Standard Review Plan for Spent Fuel Dry Storage Systems and Facilities," April 2020

NUREG/CR-6314, "Quality Assurance Inspections for Shipping and Storage Containers," April 1996.

NUREG/CR-6642, "Risk Analysis and Evaluation of Regulatory Options for Nuclear Byproduct Materials Systems," February 2000

RG 3.24, "Guidance on the License Application, Siting, Design, and Plant Protection for an Independent Spent Fuel Storage Installation," (ML13038A434)

RG 3.48, "Standard Format and Content for the Safety Analysis Report for an Independent Spent Fuel Storage Installation or Monitored Retrievable Storage Installation (Dry Storage)," Revision 0 (ML12220A065)

END

Attachment 1 – Revision History for IMC 2691

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment Resolution and Closed Feedback Form Accession Number (Pre-Decisional, Non-Public Information)
N/A	ML20338A193 12/07/20 CN 20-069	First issuance. Being issued to implement the recommendations from the ISFSI Inspection Program Enhancements initiative (ML20078P093).	Yes. Verbal discussion of new document during inspector training session. 12/31/2020	ML20338A189