
INSPECTION PROCEDURE 60855

**OPERATION OF AN INDEPENDENT
SPENT FUEL STORAGE INSTALLATION**

PROGRAM APPLICABILITY: 2515 and 2690

60855-01 INSPECTION OBJECTIVE

Determine by direct observation and independent evaluation whether the licensee is operating the independent spent fuel storage installation (ISFSI) in conformance with the commitments and requirements contained in the Safety Analysis Report (SAR), NRC's Safety Evaluation Report (SER), Certificate of Compliance (CoC) for the dry cask storage system (DCSS) design being used under a general license or the license and technical specifications (TS) for an ISFSI operated under a specific license, the licensee's Quality Assurance (QA) program, and 10 CFR Part 72.

60855-02 INSPECTION REQUIREMENTS

02.01 Before any on-site activity, review the SAR, SER, CoC, and, if applicable, the specific license and TS for the DCSS being used. The review should also include relevant Bulletins, Information Notices, or 10 CFR Part 21 reports issued related to ISFSI activities or the specific cask design. Prior to the on-site visit, ADAMS should be searched for any ISFSI related documents or reports that are relevant to the inspection or that identify issues that should be added to the inspection. The ADAMS search should go back to the date of the last inspection.

As the following documents are typically available only at the site, at the start of the inspection review any evaluations required by 10 CFR 72.212(b) for general licensed ISFSIs, and any 10 CFR 50.59 and 10 CFR 72.48 evaluations for both general and specific licensed ISFSIs, as these documents may contain assumptions regarding ISFSI operations. (NOTE: these evaluations may have been previously inspected through the use of Inspection Procedures 60856 and 60857)

02.02 Review changes made to the programs and procedures listed below since the last inspection (they may have been reviewed last in Section 02.06 of IP 60854) to verify that changes made were consistent with the license or CoC and did not reduce the effectiveness of the program. Verify that these procedures still fulfill the commitments and requirements specified in the SAR, SER, CoC, 10 CFR Part 72, the site-specific license and TS as applicable, any related 10 CFR 50.59 and 72.48 evaluations, and 10 CFR 72.212(b) evaluations for general licensed ISFSIs.

- a. Plant Operations
- b. Radwaste Storage and Handling

- c. Control of Heavy Loads
- d. Radiation Protection
- e. Security and Safeguards
- f. Emergency Preparedness
- g. Maintenance
- h. Surveillance
- i. Fire Protection
- j. Training
- k. Environmental Monitoring
- l. QA Activities
- m. Administrative Procedures

02.03 With respect to radiological controls on ISFSI operations:

- a. Evaluate the effectiveness of the licensee's plans and preparations for controlling radiological activities, by reviewing documents and interviewing selected individuals. Specific areas should include, as a minimum:
 - 1. ALARA (As Low As Reasonably Achievable) reviews and planning
 - 2. Radiation Work Permits
 - 3. Hot particle controls
 - 4. Contamination, exposure, and airborne controls
 - 5. Alarms and monitoring systems
 - 6. Response to significant crud releases
- b. Verify, by direct observation or review of selected records, that radiation dose and contamination levels are within prescribed limits after a DCSS has been installed at the ISFSI.

02.04 Verify, by direct observation of selected activities and independent evaluation, that the licensee has performed either loading or unloading, as applicable, in a safe manner and in compliance with approved procedures.

02.05 Verify, by direct observations or review of selected records, that the licensee has identified each fuel assembly placed in the ISFSI, has recorded the parameters and characteristics of each fuel assembly, and has maintained a record of each fuel assembly as a controlled document.

02.06 Verify, by direct observations or review of selected records, that the following safeguards activities have been completed in accordance with approved procedures:

- a. Records have been established for all spent fuel in storage at the ISFSI.
- b. Duplicate records of spent fuel stored in the ISFSI are being kept at a separate location, sufficiently remote from the original records such that a single event would not destroy both sets of records.
- c. During normal operations, a physical inventory has been conducted on all spent fuel stored in the ISFSI at least every 12 months.

02.07 During normal operations, verify, by direct observation or review of selected records, that routine activities are performed in accordance with approved procedures and surveillance activities have been conducted at the specified periods.

02.08 Evaluate the effectiveness of the licensee's management oversight and QA assessments of ISFSI activities, for loading, unloading, or normal operations, as applicable. This can include reviewing QA audits or surveillances, interviewing auditors, observing supervisory involvement and oversight, and reviewing deficiencies and corrective actions.

General Guidance

Structures, systems, and components (SSCs) involved in ISFSIs are not safety-related, but are classified as important to safety (10 CFR 72.3). This is based on the reduced risk associated with the reduced source term, from the spent fuel, which has decayed for a considerable period of time before being placed in the ISFSI. Consequently, the licensee needs to provide a reasonable assurance that the spent fuel can be handled, stored, and retrieved without undue risk to the health and safety of the public. However, activities inside the reactor or fuel buildings (e.g., lifting of heavy loads or movement of spent fuel) may have a direct impact on safety-related SSCs. Therefore, activities potentially affecting safety-related SSCs should receive additional attention. Questions on ISFSI activities affecting safety-related SSCs should be referred to the NRR project manager (PM). If requested, assistance on inspections may be obtained from Spent Fuel Project Office (NMSS/SFPO) and NRR.

For the purposes of this procedure, the term "licensee" may refer to a specific license holder (10 CFR 72.16) or a reactor licensee using a general license (10 CFR 72.210).

This procedure can be implemented in three distinct phases as dictated by operational events:

- a. Loading - Activities related to transferring spent fuel from the SFP to the DCSS, preparing the cask or canister for storage, and moving the DCSS to the ISFSI.
- b. Unloading - Activities related to retrieving spent fuel from a loaded DCSS in the ISFSI and transferring it either back into the SFP or into a separate storage component (storage or transportation).
- c. Normal Operations - Activities related to long-term operation and monitoring of the ISFSI.

If the licensee intends to use a different model or type of DCSS, for which a preoperational test program has not been completed, then applicable portions of IP 60854 and this procedure may be revisited.

Specific Guidance

03.01 SARs and SERs describing the operation of particular DCSS components have been written for each type of approved DCSS. DCSS designs vary widely and care must be taken to review the correct documentation. Copies may be obtained from the Division of Reactor Safety or NMSS/SFPO. While the SER can document or clarify commitments made by the licensee or vendor, it does not serve as an independent basis for enforcement actions.

03.02 Procedure changes should have been formally reviewed and approved consistent with the licensee's administrative programs, including any reviews required by the plant operations review committee (or similar entity). When performing Section 02.01, make note of any operational commitments contained in documents (e.g., the SAR, SER, CoC, and, if applicable, the specific license and TS for the DCSS being used and any 10 CFR 72.48 and 10 CFR 72.212(b) evaluations) that should be captured in the ISFSI operating procedures and verify that they have been incorporated in the applicable procedures.

Supplemental guidance may also be found in the inspection procedures used for evaluating these program areas in the MC 2515 program. Supplemental guidance on the quality classification of DCSS components may be found in the references. Further questions should be referred to NMSS/SFPO for assistance.

- a. Procedures should include normal, abnormal, and emergency conditions. They may include guidance on contingency plans for placing the DCSS in a safe configuration during an emergency or abnormal condition.
- b. No specific guidance.
- c. Review any changes to the crane, yoke and heavy loads program since the last inspection. If any changes were made, review the 10 CFR 50.59/72.48 safety evaluation that was performed.
- d. Review radiological records for the loading of several recent casks to confirm that radiation levels measured on the casks were within limits specified by the TS or CoC and consistent with values specified in the SAR. Contamination incidents since the last inspection should be reviewed to verify the licensee is continuing to maintain effective control of contamination during work activities.
- e. Security and safeguards inspections are conducted under IP 81001.
- f. No specific guidance.
- g. No specific guidance.
- h. Surveillance requirements may be found in the CoC or site-specific license and TS.
- i. Review the licensee's logs for vehicle entry onto the ISFSI pad and confirm that fuel limits were complied with. Logs or associated procedures should specify the limit from the SAR, TS or CoC. Confirm that personnel who operate the vehicles and security are aware of the limits.
- j. Confirm that any new personnel assigned to the ISFSI since the last inspection have been trained or have been scheduled for training. Through interviews, confirm their knowledge of the safety significant aspects of their job assignments. Also, any changes made to procedures should be incorporated into retraining or a read and sign program before being implemented.
- k. Review the environmental dosimetry records since the last inspection for the areas around the ISFSI pad to verify that accumulation of casks on the ISFSI pad have not caused dose rates in the area to exceed 10 CFR 20 limits without posting the area. Verify that workers in nearby buildings are not experiencing elevated dose rates that would be inconsistent with the principles of ALARA (as low as reasonably achievable) and that areas accessible by the public are not exceeding doses to the public specified in 10CFR20.
- l. Supplemental guidance may be found in applicable MC 2515 IPs.
- m. No specific guidance.

03.03 Supplemental guidance on inspecting these activities can be found in applicable MC 2515 radiation protection IPs. Licensee procedures and planning should consider the possibility of major crud releases when moving spent fuel bundles. The licensee should be prepared to analyze any major crud releases to determine if indications of cladding damage are present.

03.04 Pre-job briefings should be observed. These briefings should include discussions of planned activities, hold and inspection points, contingency plans, and radiation safety issues. The inspector is encouraged to select activities with potential safety consequences, such as control of heavy loads, canister sealing activities, or leak testing.

03.05 The licensee is required to confirm that each fuel assembly stored in a DCSS at its ISFSI meets the conditions for cask and canister use as specified in the CoC and, if applicable, the site-specific license. Records should be maintained as quality documents under the licensee's QA Program.

03.06 10 CFR 72.72(b) requires that a physical inventory be conducted annually. Because it would not be practical to open the sealed DCSS, solely to inventory the contents, alternate material control and accounting (MC&A) methods should be used. For example, licensee verification that tamper-indicating seals or other methods were present and intact would provide an adequate indication that the specific spent fuel bundles loaded into a DCSS were still in place.

03.07. Observe, on a rotating basis, the various operations, maintenance, surveillance, engineering and plant support activities performed at the ISFSI. Normal activities might include: monitoring temperatures, calibrating instruments, inspecting ventilation openings for obstructions, surveying radiation levels, or testing security systems. Additional guidance on inspecting those activities may be found in applicable MC 2515 IPs. These observations may be credited against applicable portions of the MC 2515 core program.

03.08 No additional guidance.

60855-04 INSPECTION RESOURCES

04.01 Generally, to prepare for inspection of loading or unloading activities, each inspector should spend approximately 16 hours for in-office review. Inspection activities will require approximately 40 hours, each, by three inspectors. Documentation is estimated at 16 hours per inspector. It is expected that regional inspection personnel will perform this procedure, with assistance from NMSS and NRR staff, as requested. Actual budgeted resources for each inspection will vary as defined in the IIP developed for each site.

04.02 Estimates for routine performance of normal operations activities is 3 hours per inspector every 6 months. It is expected that regional inspection personnel will accomplish this portion of the procedure.

60855-05 REFERENCES

ANSI/N14.6-1993, "For Radioactive Materials - Special Lifting Devices for Shipping Containers Weighing 10,000 Pounds (4500 kg) or More."

NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants," July 1980. Licensee implementation of this NUREG may vary and specific commitments to this guidance are covered by responses to NRC Generic Letters 80-113 and 85-11.

NUREG/CR-6407, "Quality Classification of Transportation Packaging and Dry Spent Fuel Storage System Components According to Importance to Safety," February 1996.

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