INSPECTION PROCEDURE 60858

AWAY-FROM-REACTOR ISFSI INSPECTION GUIDANCE

PROGRAM APPLICABILITY: 2690

60857-01 INSPECTION OBJECTIVE

Determine by direct observation and independent evaluation whether the licensee is operating and maintaining independent spent fuel storage installation (ISFSI) programs at away-from-reactor (AFR) ISFSIs in conformance with the commitments and requirements contained in the Safety Analysis Report (SAR), Nuclear Regulatory Commission's (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 or maintained under a specific license, the licensee's Quality Assurance (QA) program, and 10 CFR Part 72.

An AFR ISFSI, as defined in Inspection Manual Chapter (IMC) 2690, is 1) a specific licensed ISFSI whose associated support programs are not conducted under a 10 CFR Part 50 license, or 2) any general licensed ISFSI where decommissioning and final survey activities related to reactor operations are completed and the only remaining operation conducted under the 10 CFR Part 50 license is the operation of the general licensed ISFSI. This inspection procedure (IP) provides specific guidance for the inspection of programs associated with operational AFR ISFSIs (i.e., QA, safety evaluations, radiation protection, emergency preparedness, and training) that are not reviewed by IMC 2500 series IPs associated with operating or decommissioning reactor facilities.

60857-02 INSPECTION REQUIREMENTS

02.01 Before any on-site activity, review the SAR, SER, CoC, and if applicable, the specific license and the TS for the DCSS being used. The review should also include relevant Bulletins, Information Notices, and 10 CFR Part 21 reports issued related to ISFSI activities or the specific cask design. Prior to the on-site visit, the Agency-wide Documents Access and Management System (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.

A review of the licensed activities will be commensurate with the scope of the licensee's program. AFR ISFSI facilities located at sites where loading operations have been completed are essentially passive operating facilities. Evaluation of these facilities is directed towards confirming the ongoing adequacy of the Radiation Protection, Fire Protection, Emergency Preparedness, Surveillance, and Environmental Monitoring programs. AFR ISFSIs that are in pre-operational or initial operational status are inspected

in accordance with the requirements of IMC 2690, Appendix B, Table B-1.

02.02 Review changes made to the programs and procedures listed below since the last inspection 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 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. Emergency Preparedness

f. Maintenance

g. Surveillance

h. Fire Protection

I. Training

j. Environmental Monitoring

k. QA Activities

l. Administrative Procedures

02.03 With respect to Radiation Protection:

a. Evaluate the effectiveness of the licensee's plans and preparations for controlling radiological activities, by reviewing documents and interviewing selected individuals. Specific areas for assessment should consider:

    1. As Low As Reasonably Achievable (ALARA) reviews and planning

    2. Radiation Work Permits

    3. Contamination and exposure controls

    4. Alarms and monitoring systems

b. Verify by direct observation or review of selected records, that ISFSI radiation dose and contamination levels are within prescribed limits.

c. Verify by direct observation that any radioactive material present at the ISFSI is properly controlled and stored in accordance with site requirements. Verify that the special nuclear material (SNM) stored at the ISFSI is properly accounted for by the licensee. Radioactive material includes sources that the licensee may maintain to perform instrument source checks.

02.04 With respect to Emergency Preparedness:

a. Verify that any changes made to the licensee's emergency preparedness program since the last inspection have been evaluated to determine if they decrease the program commitments.

b. Verify that the licensee has made no changes that could decrease the overall effectiveness of the emergency preparedness program without prior NRC approval.

c. Verify that any changes to the emergency preparedness program have been properly coordinated with the appropriate offsite support groups, agencies and local law enforcement agencies (LLEA).

d. Interview a sampling of individuals that have been assigned key roles in the emergency response organization to determine whether they have been trained as required and understand their roles and responsibilities. Verify that the required training has been implemented for both onsite and offsite responders.

e. Verify that the licensee's emergency call list is current and has been verified by the licensee per the specified frequency.

f. Examine audit reports as well as independent and internal reviews of the emergency preparedness program that have been conducted since the last inspection. Ensure that audit findings and deficiencies identified during drills and exercises were entered into the licensee's corrective action program.

02.05 With respect to Maintenance:

a. Verify by direct observation and by conducting interviews that maintenance activities are performed in accordance with regulatory requirements to support safe storage of spent fuel and reliable operation of the ISFSI facility.

b. Assess the overall material condition of the ISFSI facility as it pertains to the safe operation of the ISFSI.

02.06 With respect to Surveillance:

a. Evaluate the effectiveness of the licensee's program for scheduling and performing surveillance activities required by the CoC and TS, commitments, and regulatory requirements.

b. Verify that required surveillance parameters specified in the CoC and TS are maintained within prescribed limits.

02.07 With respect to Fire Protection:

a. Evaluate the effectiveness of the licensee's implementation of the Fire Protection program to support safe storage of spent fuel.

b. Verify by direct observation that no un-analyzed combustible materials are stored or located within the ISFSI facility and that fire loading does not exceed prescribed limits.

02.08 With respect to Training:

a. Verify by direct observation, conducting interviews, and review of documentation that individuals have been trained and qualified to perform their assigned ISFSI-related functions.

02.09 With respect to Environmental Monitoring:

a. Verify by direct observation that area radiation monitoring devices (i.e., thermoluminescence dosimeter (TLDs)) are suitably positioned around the perimeter of the ISFSI to monitor integrated exposures along the fence line.

b. Confirm by review of area radiation monitoring records and interviews that doses to members of the public at the nearest accessible location to the ISFSI are adequately controlled and within limits prescribed by 10 CFR 72.104.

02.10 With respect to QA Activities:

a. Verify that any changes to the ISFSI facility, DCSS systems or procedures have been performed in accordance with the licensee's QA program requirements.

b. Evaluate the licensee's effectiveness in identifying, resolving, and preventing problems, by reviewing the corrective action program, root cause analyses, safety committees and self assessments in these areas.

c. Review the administrative procedures that control the conduct of self-assessments, audits and quality-related surveillances. Verify that the individuals performing these activities have been qualified in accordance with site requirements and that their certifications were valid at the time of the audit. Verify that the individuals were sufficiently independent from the line organization that was being audited. Evaluate the effectiveness of the audits, self-assessments and surveillances in identifying programmatic weaknesses and areas of declining performance.

General Guidance.

Programs for ISFSI facilities located at active or decommissioning 10 CFR Part 50 facilities are typically controlled by the associated 10 CFR Part 50 facilities' programs. In comparison, an AFR ISFSI may be a specific licensed ISFSI whose associated support programs are not conducted under a 10 CFR Part 50 license, or a general licensed ISFSI where decommissioning and final survey activities related to reactor operations are completed and the only remaining operation conducted under the 10 CFR Part 50 license is the operation of the general licensed ISFSI. AFR ISFSI licensee programs (i.e., QA, safety evaluations, radiation protection, emergency preparedness, and training), even if previously reviewed under IMC 2500 series IPs, require periodic inspection in accordance with this IP once the ISFSI falls under the definition of an AFR ISFSI as defined in IMC 2690. This IP provides specific guidance for the inspection of programs associated with operational AFR ISFSIs that are not, or are no longer, reviewed by IMC 2500 series IPs associated with operating or decommissioning reactor facilities.

Pre-operational ISFSI inspections and initial operational AFR ISFSI inspections are conducted in accordance with Appendix B of IMC 2690. Any reviews of 10 CFR 72.212(b) and 10 CFR 72.48 evaluations required by this IP should be conducted per the guidance contained in IPs 60856 and 60857.

Structures, systems, and components (SSCs) classified as important to safety are those features of the ISFSI and spent fuel storage cask that are required to maintain the spent fuel in a safe condition and prevent damage during handling and storage activities. Consequently, the licensee needs to provide reasonable assurance that the spent fuel can be handled , stored, and retrieved without undue risk to the health and safety of the public.

Specific Guidance.

03.01 Details concerning the operation of particular DCSS components are provided in the SARs and SERs for each type of approved DCSS. DCSS designs vary widely and care must be taken to review the correct documentation. Copies of SARs and SERs may be obtained from the Office of Nuclear Material Safety and Safeguards (NMSS), Division of Spent Fuel Storage and Transportation (SFST). 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 independent review group. When performing Section 02.01, make note of any operational commitments contained in documents (i.e., 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 IPs used for evaluating these program areas in the IMC 2515 program. Supplemental guidance on the quality classification of DCSS components may be found in the references. Further assistance may be obtained

from NMSS/SFST.

a. Procedures should address 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 supporting 10 CFR 50.59/72.48 safety evaluation.

d. Review radiological records for the loading of several recent casks to confirm that measured radiation and contamination levels on casks were within prescribed limits specified by the TS or CoC and consistent with values specified in the SAR.

e. No specific guidance.

f. No specific guidance.

g. Review surveillance records to confirm that CoC or specific license and TS required surveillances have been performed and results were within prescribed limits.

h. 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 fuel limits from the SAR, TS, CoC or 10 CFR 72.212(b) evaluations. Confirm that personnel who operate the vehicles and security are aware of the limits.

i. Confirm that any new personnel assigned to ISFSI activities 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. Confirm that any procedure changes made since the last inspection have been incorporated into retraining or a "read and sign" program before being implemented.

j. 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 Part 20 limits without posting the area. Verify that workers in nearby buildings are not subject to elevated dose rates that would be inconsistent with ALARA principles. Verify that dose rates in areas accessible to members of the public do not exceed 10 CFR Part 20 limits.

k. Supplemental guidance may be found in applicable IMC 2515 IPs.

l. No specific guidance.

03.03 Review reports of audits, evaluations, self-assessments and ALARA committee meetings performed since the last inspection. Review the site's ALARA program and

determine if the goals are realistic. Compare the current steady-state ISFSI annual collective dose to past annual doses and determine if the collective dose is increasing or decreasing. Determine the cause of any large dose variances that are discovered.

The licensee is required to confirm that each fuel assembly stored in a DCSS at an ISFSI meets the conditions for cask and canister use as specified in the CoC and, if applicable, the specific license. Records should be maintained as quality documents under the licensee's QA program. For AFR ISFSI facilities these activities would be performed at that location where the individual fuel assemblies were originally loaded into the canister. The inspector should review selected records to confirm that applicable requirements are being met.

10 CFR 72.72(b) requires that a physical inventory be conducted annually. Since it is not practical or desirable to open sealed storage casks, 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 adequate indication that specific spent fuel bundles loaded into a DCSS were still in place.

03.04 Review the emergency plan changes made by the licensee since the last inspection was performed. The licensee should have a program in place that evaluates whether the changes decrease the effectiveness of the plan. If a decrease of plan effectiveness is determined, prior NRC approval must be obtained before implementing the change.

Review the emergency plan implementing procedures used by the licensee along with the training offered to both onsite and offsite personnel. Verify that the required training has been conducted for onsite responders and offered to offsite responders. Changes made to the emergency plan should be distributed to appropriate personnel and organizations. Interview a sample of individuals from all organizations that received the training to determine if the training program has been effective and notices of program changes were made. Review requirements for performance of drills and exercises along with specified critiques. Ensure that the licensee is following plan requirements. Verify that the latest revision of the emergency plan is available in the designated emergency response facilities.

Review the licensee's corrective action system to determine what deficiencies exist in the emergency plan process. Ensure that deficiencies identified during drills and exercises were entered into the corrective action system and adequately resolved. Verify that the licensee is conducting audits of the emergency plan process on a routine basis. Determine if the scope and depth of the audits are comprehensive enough to provide a complete overview of the program.

03.05 No specific guidance.

03.06 Review the SAR, CoC and TS for specific surveillance requirements that apply to the ISFSI. Observe surveillance activities that are scheduled during the inspection. Verify through records that selected surveillances were performed as required by the SAR, CoC and TS.

03.07 No specific guidance.

03.08 Review procedures and training requirements associated with specific ISFSI positions. Positions that should be considered include ISFSI operators, 10 CFR 72.48 reviewers and safety review committee membership. Interview selected individuals and review their training records to ensure that their training is current and meets site requirements. Individuals should be able to readily discuss their responsibilities and demonstrate an understanding of the critical knowledge and skills required to perform the specified task.

03.09 No specific guidance.

03.10 Review a list of the licensee's condition reports since the last inspection and select several for a detailed review. Determine if the licensee correctly assigned the significance level for the condition report. Review the condition report and the cause or root cause determination conducted by the licensee. Determine whether the licensee identified all the causes, including generic implications, and that the corrective actions were effective in precluding recurrence. Identify any potential weaknesses in the licensee's program.

Review the licensee's audit plan to verify that audits of major program areas are scheduled and executed on a periodic basis in accordance with the licensee's QA Manual and licensee requirements. Review selected audits and self-assessments performed by the organization for completeness. Verify that personnel performing the audits were qualified in accordance with the QA program requirements. Review the audit findings and verify that adverse findings were entered into the licensee corrective action system.

60857-04 INSPECTION RESOURCES

The inspection time for AFR ISFSI facilities will vary depending upon whether the facility is a passive, completely loaded, facility or an operating facility. Inspections at a passive, completely loaded, ISFSI facility may be performed by one inspector. Inspections at an operational ISFSI may require more than one inspector depending on the operational status of the ISFSI at the time of the inspection. Each inspector should spend approximately 16 hours for in-office review. Inspection activities will require approximately 24 hours. Documentation time is estimated to require 24 hours.

It is expected that regional inspection personnel will perform this procedure.

60857-05 REFERENCES

IP 40801, "Self-Assessment, Auditing, and Corrective Action at Permanently Shutdown Reactors."

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

IP 64704, "Fire Protection Program."

IP 82701, “Operational Status of the Emergency Preparedness Program.”

IP 83750, “Occupational Radiation Exposure.”

IP 83822, “Radiation Protection.”

IP 88050, “Emergency Preparedness.”

NUREG-0612, “Control of Heavy Loads at Nuclear Power Plants,” July 1980.

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

END

ATTACHMENT 1

Revision History for IP 60858

Commitment Tracking Number	Issue Date	Description of Change	Training Needed	Training Completion Date	Comment Resolution Accession Number
	05/03/07 CN 07-015	New Procedure to provide explicit guidance to regional ISFSI inspectors regarding periodic routine inspections at Away-from-reactor ISFSIs as called for in NRC Manual Chapter 2690.	None	N/A	ML070430093