



UNITED STATES
NUCLEAR REGULATORY COMMISSION

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November 22, 1995

Docket
File

50-219

Mr. Paul Gunter, Director
Reactor Watchdog Project
Oyster Creek Nuclear Watch
Nuclear Information and Resource Service
1424 16th Street, NW, Suite 601
Washington, DC 20036

Mr. William deCamp, Jr.
Founding Trustee
Oyster Creek Nuclear Watch
P.O. Box 243
Island Heights, NJ 08732

Dear Messrs. Gunter and deCamp:

As stated in the letter from William T. Russell to you dated October 27, 1994, the NRC staff has been implementing a plan regarding spent fuel storage pool concerns. I have enclosed a copy of the staff's generic action plan for your review. The action plan addresses on a generic basis the concerns identified in the 10 CFR Part 21 report filed by Mr. David A. Lochbaum and Mr. Donald C. Prevatte and separate concerns related to spent fuel storage pools identified during a special NRC inspection at a permanently shut-down reactor facility. The generic plan includes the following actions: (1) a search and analysis of information regarding spent fuel storage pool issues, (2) an assessment of spent fuel storage pool operation and design at selected reactor facilities, (3) an evaluation of the assessment findings for safety concerns, and (4) selection and execution of an appropriate course of action based on the safety significance of the findings. The schedule indicated in the enclosed plan has been revised. Completion of this effort is expected in early 1996.

The staff has identified particular issues related to spent fuel storage pools and completed on-site assessments of spent fuel pool operations at four sites in addition to the detailed review at Susquehanna Steam Electric Station in response to the Part 21 report. The staff has documented the findings from these assessments, which focused on design features and administrative controls, in individual reports. To address concerns that the sites selected for the assessments may not be representative of all reactor sites, the staff has expanded the scope of the technical review to include a design and licensing document review of multiple other sites, which has contributed to a

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delay in completing tasks 7 through 10 of Part A of the action plan. Based on findings from these technical reviews and their significance, the NRC staff will develop appropriate criteria for specific spent fuel pool operations for potential use in formulating generic communications, revisions of regulatory guidance, and other appropriate regulatory actions.

Sincerely,

Original signed by:

Alexander W. Dromerick, Sr. Project Manager
Project Directorate I-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosure: As stated

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delay in completing tasks 7 through 10 of Part A of the action plan. Based on findings from these technical reviews and their significance, the NRC staff will develop appropriate criteria for specific spent fuel pool operations for potential use in formulating generic communications, revisions of regulatory guidance, and other appropriate regulatory actions.

Sincerely,


Alexander W. Dromerick, Sr. Project Manager
Project Directorate I-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosure: As stated

TASK ACTION PLAN FOR SPENT FUEL STORAGE POOL SAFETY

The NRC staff developed this task action plan to address safety issues that have arisen as a result of recent problems with spent fuel storage pools (SFPs) at operating and permanently shutdown reactors.

BACKGROUND

On November 27, 1992, two consulting engineers contracted to Pennsylvania Power and Light Company (PP&L), the licensee for Susquehanna Steam Electric Station (SSES or Susquehanna) filed a 10 CFR Part 21 Notification to inform the NRC of a potential deficiency in the design of the SFP cooling system at Susquehanna. The notification stated that a loss-of-coolant accident (LOCA), alone or concurrent with a loss of off-site power, would create an inability to adequately cool the SFP. Assumed radiological conditions that develop as a result of postulated fuel damage following a LOCA prevent necessary access to the reactor building for restoration of a method of SFP decay heat removal. The notification postulated that subsequent boiling of the SFP would cause a failure of equipment necessary for accident mitigation due to the environmental conditions caused by the SFP boiling within the reactor building and a total loss of spent fuel pool coolant inventory due to the inability to add make-up without reactor building access. Based on these equipment failures, the engineers postulated that severe off-site consequences would result.

Based on a preliminary review of the Part 21 Report, the staff concluded that the postulated sequence of events was not sufficiently safety significant to warrant immediate action because of the low probability of occurrence of the necessary concurrent events. In response to the Part 21 Report, PP&L has conducted its own assessment of the issue and has made several procedural and hardware modifications that the staff believes have improved the reliability of spent fuel pool cooling. The staff expects to complete a final review of the concerns raised in the Part 21 report, including a risk assessment that considers the licensee's modifications, by November 1994. Although the specific postulated sequence of events may not be safety significant, the staff believes that certain underlying concerns have potential generic implications for plants with similar designs.

On January 25, 1994, the licensee for the Dresden Nuclear Power Station Unit 1 discovered approximately 55,000 gallons of service water in the basement of the unheated Unit 1 containment. Dresden 1 has been permanently shutdown since October 31, 1978. The water originated from a rupture of the service water system piping inside the containment that had been caused by freeze damage to the system. The licensee investigated the circumstances further and found that there was a potential for a portion of the spent fuel pool system inside the containment to fail in a similar manner and result in a partial draindown of the spent fuel pool, which contained 660 spent fuel assemblies.

Attachment

On April 15, 1994, the staff issued NRC Bulletin 94-01, "Potential Fuel Pool Draindown Caused By Inadequate Maintenance Practices at Dresden Unit 1." This Bulletin requested licensees for permanently shutdown facilities to take action to address the potential for draining the spent fuel pool coolant level below the top of the spent fuel assemblies, which was identified at Dresden 1. In addition, on May 27, 1994, the staff issued NRC Information Notice 94-38, "Results of a Special NRC Inspection at Dresden Nuclear Power Station Unit 1 Following a Rupture of Service Water Inside Containment," in which the staff informed licensees of operating plants of the problems that were identified at Dresden 1. This event, although it occurred in a permanently shutdown unit, may also have generic implications for operating plants.

CONCLUSION

This task action plan is intended to focus NRC staff actions on SFP problems identified by the above issues and related concerns. The following table describes the specific actions, which include: (1) a determination of the safety significance of identified concerns, (2) a determination of the facilities where the concerns may be applicable, (3) an evaluation of the adequacy of present SFP designs, (4) an evaluation of the adequacy of current NRC guidance for SFP designs, and (5) an evaluation of the need for generic actions to address significant issues at operating and permanently shutdown facilities.

SPENT FUEL POOL GENERIC ISSUES TASK ACTION PLAN, REVISION 0
September 28, 1994

PART A: OPERATING PLANTS

Task	Description of Task	Lead Group	End Date	Status
1	Identify and compile a list of significant concerns regarding the reliability and safety of spent fuel storage in on-site pools at operating facilities.	SPLB		Ongoing
a)	Search LER database for significant events related to spent fuel storage pools.	SPLB	10/94	Ongoing
b)	Review NUREG-1353, "Regulatory Analysis for the Resolution of Generic Issue 82, 'Beyond Design Basis Accidents in Spent Fuel Pools'," and other NUREG reports and generic communications related to spent fuel storage pools.	SPLB	10/94	Ongoing
c)	Review 10 CFR Part 21 Report regarding loss of spent fuel pool cooling at Susquehanna, comments from authors of Part 21 report, and NRC staff conclusions.	SPLB	11/94	Ongoing
d)	Review results of special inspection at Dresden 1, Information Notice 94-38, and Bulletin 94-01. Include early results from inspections at permanently shutdown facilities.	SPLB	11/94	Ongoing
e)	Consult with regions to identify spent fuel storage pool concerns discovered through inspection activity.	SPLB	11/94	
f)	Consult with AEOD to capture Spent fuel storage pool concerns identified through their studies.	SPLB	10/94	
g)	Examine Systematic Evaluation Program reviews for concerns regarding spent fuel storage pools.	SPLB	11/94	

Task	Description of Task	Lead Group	End Date	Status
2	Review existing NRC guidance and requirements related to spent fuel storage in pools (i.e., 10 CFR Part 20, 10 CFR Part 50, Regulatory Guides, SRP, Inspection Manual, and Temporary Instructions).	SPLB	8/94	Complete
3	Forward report of significant concerns to NRR management for comment. Highlight those concerns that are outside the scope of existing regulations and guidance.	SPLB	12/94	
4	Based on the list of identified concerns, develop an inspection plan to evaluate the extent of these concerns at a sample of operating reactor's spent fuel facilities.	SPLB	12/94	
5	Conduct inspections of selected plants.			
	a) Establish criteria for plants to be selected.	SPLB	12/94	
	b) Select specific sites, with concurrence of Regions.	SPLB/ PD I-2	1/95	
	c) Complete the inspections.	SPLB	6/95	
6	Evaluate and report the results of the individual plant inspections. Evaluate the significance of inspection findings with regard to the resolution of Generic Issue 82.	SPLB	7/95	
7	Qualitatively assess the risk associated with the safety concerns identified during the individual plant inspections. Report areas where risk may be effectively evaluated in a quantitative manner.	SPSB/ SPLB	9/95	
8	Based on results of individual plant inspections, assess the adequacy of spent fuel pool coolant activity limits, the structural integrity of the pool, and the adequacy of leakage monitoring with regard to potential effluent releases.	PRPB	10/95	

Task	Description of Task	Lead Group	End Date	Status
9	Based on the results of individual plant inspections, assess the effect of radioactive material storage practices in the spent fuel pool on recovery actions following a loss of spent fuel pool coolant inventory event.	PRPB	10/95	
10	<p>Develop a course of action based on the probability of occurrence of identified problems, the potential for exceeding off-site release limits, and the significance of the findings at the plant sites. Consider the following potential actions:</p> <ul style="list-style-type: none"> • Generic Communications • Revision of Existing Guidance • Rulemaking • Expanded Inspection Activity 	SPLB	11/95	/
11	Implement the selected course of action.		12/96	

PART B: PERMANENTLY SHUTDOWN PLANTS

Task	Description of Task	Lead Group	End Date	Status
1	Identify and compile a list of significant concerns that are applicable to the reliability and safety of spent fuel storage in on-site pools at permanently shutdown facilities from the list compiled for Item 3 of Part A.	SPLB	1/95	
2	Evaluate the need for additional requirements at permanently shutdown facilities storing spent fuel with regard to protection from postulated external events (i.e., fire, flooding, tornados, etc.). Provide results to DORS.	SPLB	1/95	Ongoing
3	Provide technical assistance to DORS in assessing the need for emergency planning programs and indemnity protection at permanently shutdown facilities storing spent fuel. Incorporate insights from the evaluation of inspection results at operating facilities developed for Item 6 of Part A.	SPLB	8/95	
4	Provide technical input to DORS regarding rulemaking and other generic activities applicable to spent fuel storage at permanently shutdown facilities.	SPLB	TBD	