



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO NRC BULLETIN 95-02

COMMONWEALTH EDISON COMPANY

LASALLE COUNTY STATION, UNITS 1 AND 2

DOCKET NOS. 50-373 AND 50-374

1.0 INTRODUCTION

NRC Bulletin 95-02, "Unexpected Clogging of a Residual Heat Removal (RHR) Pump Strainer While Operating in Suppression Pool Cooling Mode," was issued on October 17, 1995. It requested all holders of boiling-water reactor (BWR) operating licenses or construction permits for nuclear power reactors to take five actions to ensure that unacceptable buildup of debris that could clog strainers does not occur during normal operation. By letters dated November 14, 1995, and January 10, 1996, Commonwealth Edison Company (ComEd, the licensee) submitted its response to NRC Bulletin 95-02 for LaSalle County Station, Units 1 and 2. In its response, the licensee stated its intent to comply with the requested actions in the bulletin.

2.0 DISCUSSION

The following describes the requested actions in NRC Bulletin 95-02 and the licensee's response to each requested action.

Action 1

Verify the operability of all pumps which draw suction from the suppression pool when performing their safety functions (e.g., ECCS [emergency core cooling system], containment spray, etc.), based on an evaluation of suppression pool and suction strainer cleanliness conditions. This evaluation should be based on the pool and strainer conditions during the last inspection or cleaning and an assessment of the potential for the introduction of debris or other materials that could clog the strainers since the pool was last cleaned.

Response

The Unit 1 suppression pool strainers were inspected during that unit's refueling outage in April 1994, and the Unit 2 suppression pool strainers were inspected during that unit's refueling outage in March 1995. During that inspection, all identified foreign material was removed and the suppression pool cleanup system was used to improve the turbidity and ionic quality of the suppression pool water. On Unit 1, a SCRAM, with a safety relief valve lift, occurred in August 1995, followed by Residual Heat Removal (RHR) A and B operation for suppression pool cooling. No flow degradation was identified in the pump discharge pressure from those runs. For both units, quarterly in-service testing ECCS pump surveillance data was reviewed and no

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degradation of pump suction pressure was identified. Finally, a foreign material exclusion (FME) program, developed in response to NRC Bulletin 93-02 and 93-02, Supplement 1, has been in place since February 1994. Based on the above, the licensee concluded that all pumps which draw suction from the suppression pool while performing their safety function are operable.

Action 2

Confirm the operability evaluation in requested action 1 above through appropriate test(s) and strainer inspection(s) within 120 days of the date of this bulletin.

Response

Multiple ECCS (RHR and Low Pressure Core Spray) pump tests were performed to confirm ECCS suction strainer operability on January 4, 1996, for Unit 1 and on January 5, 1996, for Unit 2. No decrease in pump suction pressure was identified over the course of the 8 hour tests.

Action 3

Schedule a suppression pool (torus) cleaning. The schedule for cleaning the suppression pool should be consistent with the operability evaluation in requested action 1 above. In addition, a program for periodic cleaning of the suppression pool should be established, including procedures for the cleaning of the pool, criteria for determining the appropriate cleaning frequency, and criteria for evaluating the adequacy of the pool cleanliness.

Response

In the November 14, 1995, letter, the licensee committed to clean, inspect, and desludge the suppression pools for each unit during its next scheduled refueling outage. In addition, cleanliness of the suppression pool will be maintained by the following program. A multiple ECCS pump run will be repeated starting at every second future refueling outage of each unit. Two strainers will be inspected at every second outage, alternating between using remote cameras (or equivalent) or a direct diver inspection.

Action 4

Review FME procedures and their implementation to determine whether adequate control of materials in the drywell, suppression pool, and systems that interface with the suppression pool exists. This review should determine if comprehensive FME controls have been established to prevent materials that could potentially impact ECCS operation from being introduced into the suppression pool, and that workers are sufficiently aware of their responsibilities regarding FME. Any identified weaknesses should be corrected. In addition, the effectiveness of the FME controls since the last time the suppression pool was cleaned and the ECCS strainers inspected, and the impact that any weaknesses noted may have on the operability of the ECCS, should be assessed.

Response

The licensee stated that, although existing FME procedures are adequate, it is continuously working to enhance the FME program. A standardized maintenance procedure will be implemented which includes actions to preclude FME events. The suppression pool and drywell are permanently designated as zones requiring the highest level of FME controls. Additional controls include drywell closeout procedural steps, FME logs, and expanded availability of FME devices to preclude introduction of foreign material into the suppression pool.

Action 5

Consider additional measures such as suppression pool water sampling and trending of pump suction pressure to detect clogging of ECCS suction strainers.

Response

Beyond the actions described above, ECCS pump suction pressure will be trended and an inspection program for the suppression pool downcomers will be implemented.

3.0 EVALUATION

The purpose of the requested actions in the bulletin is to ensure that ECCS and other pumps drawing suction from the suppression pool do not experience unacceptable buildup of debris that could clog strainers during normal operation which would prevent them from performing their safety function. Action 1 requested licensees to evaluate the operability of their pumps based on the cleanliness of the suppression pool and strainers. Action 2 then requested a verification of the licensee's assessment through a pump test and strainer inspection. These two actions serve to ensure that the pumps are currently operable and not experiencing unacceptable debris buildup. Actions 3, 4 and 5 serve to ensure that appropriate measures, such as cleaning of suppression pools and strengthening of FME practices, are taken in the long term to prevent debris accumulation in the pool.

As committed to in the licensee's response to action 3, the suppression pools were cleaned and desludged during the 1996 refueling outages. During the Unit 1 cleaning, a number of small items were found and removed under the silt layer as well as a quantity of silt. No concerns were identified. During the Unit 2 cleaning, however, a significant quantity of foreign material was removed from under the silt layer which appeared to have been in the pool since initial construction. These findings are documented in Licensee Event Report 96-09. Although this material raised questions with regard to past operability, the foreign material and the silt were removed as part of this cleaning.

The staff has concluded that the licensee's assessment of the ability of all pumps drawing suction from the suppression pool to perform their safety function has a reasonable basis for concluding that all of the pumps evaluated are operable. The licensee conducted an inspection to confirm that the ECCS were not affected by an unacceptable buildup of debris that could clog the pump strainers. Initial strainer cleanliness was considered good. The staff has concluded that the licensee's response meets the intent of requested actions 1 and 2 and is acceptable.

The staff has also concluded that the licensee's evaluation of its FME program and suppression pool cleaning program meet the intent of requested actions 3 and 4, and are acceptable. Although the Unit 2 sump had a significant quantity of foreign material at the time of the licensee response, the subsequent cleaning removed the material. The discovery of this material did not call into question the licensee's current FME program because the majority of material was determined to have been deposited prior to implementation of the licensee's enhanced FME controls.

The licensee's programs for trending pump suction pressure data, sampling torus water/sediment, and periodically inspecting the strainers and torus provide additional opportunity for early identification of potential strainer fouling. The staff has concluded that these additional actions meet the intent of requested action 5 and are acceptable. The staff has also concluded that the schedule for implementation of the actions proposed by the licensee is appropriate given the actions already taken.

4.0 CONCLUSION

Based on the staff's evaluation of the licensee's submittals, the staff finds the licensee's response to NRC Bulletin 95-02 acceptable.

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