

James A. FitzPatrick
Nuclear Power Plant
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Harry P. Salmon, Jr.
Resident Manager

April 19, 1994
JAFF-94-0228

U. S. Nuclear Regulatory Commission
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SUBJECT: James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
Response to NRC Bulletin No. 93-02 Supplement 1
Debris Plugging of Emergency Core Cooling Suction Strainers

References: 1) NRC Bulletin No. 93-02 Supplement 1, "Debris Plugging of
Emergency Core Cooling Suction Strainers," dated
February 18, 1994.
2) Safety Assessment, "BWR Emergency Core Cooling System
Suction Strainers", G.E. Nuclear Energy for BWR Owners
Group, Dated March, 1994.

Attachments: 1) List of Commitments.

Dear Sir:

This letter describes the actions taken by the New York Power Authority in response to NRC Bulletin No. 93-02 Supplement 1 (Reference 1) at the James A. FitzPatrick Nuclear Power Plant (JAF).

The Bulletin Supplement requests a written report within 60 days of issue stating whether the actions requested have been or will be performed, a description of planned actions, and a schedule for completing them. The original bulletin was issued on May 11, 1993 and required Licensees to identify fibrous air filters and other temporary fibrous materials in the containment and to take prompt action to remove those not designed to withstand LOCA conditions. The JAF response to the original Bulletin was accepted by the NRC.

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The NRC issued Bulletin 93-02 Supplement 1 based on the ECCS Suction Strainer blockage problems at Barsebäck Nuclear Power Plant and the Perry Nuclear Power Plant. The Supplement states that there is potential for common mode failure of the ECCS suction strainers based on studies that indicated that previous assumptions regarding a LOCA and the amount of insulation removed from adjacent pipes, the amount of debris transported to the suppression pool, the amount of debris that ends up on the suction strainers, and the time delay until strainer clogging occurs may have been underestimated. The NRC has requested that BWR licensees take the interim actions listed in the Supplement to enhance the capability to prevent or mitigate loss of the ECCS following a LOCA.

Actions Requested:

1. Provide training and briefings to apprise operators and other emergency response personnel of the information contained herein and in the referenced information notices.

JAF Response:

The NRC Bulletin was routed for required reading for operations personnel as an immediate action to apprise operators of the concerns of the Bulletin. The Operations Training Group is conducting training in the current licensed operator requalification cycle. The training will consist of classroom training on the history, present concerns, possible indications of clogging, and mitigative actions regarding this issue. The training also includes a simulator scenario which ensures operators can recognize symptoms of a similar event and are able to mitigate consequences using the Emergency Operating Procedures (EOPs) and supporting procedures. This training began March 28 and will be completed by May 13, 1994.

The Engineering Support Personnel (ESP) Program Administrator routed the bulletin to plant engineers, who have Emergency Response Organization responsibilities, for required reading (This will be completed prior to May 18, 1994). During the next ESP Continuing Training cycle the concerns from the bulletin will be discussed with the entire ESP staff. Scheduled to be completed June 30, 1994

Actions 2 & 3

2. Assure the emergency operating procedures make the operator aware of possible indications of ECCS strainer clogging and provide guidance on mitigation.

3. Institute procedures and other measures to provide compensatory actions to prevent, delay, or mitigate a loss of available NPSH margin under LOCA conditions. Such measures should be consistent with providing the design basis emergency system functions for core and containment cooling.

JAF Response to 2 & 3:

JAF EOPs are symptom based and as such address a full spectrum of initial plant conditions and postulated transients. The EOPs do not unconditionally prioritize the use of one injection source over another. When actions are directed by the EOPs, operators will use the supporting procedures to manipulate the systems as necessary.

The Supplement suggests that actions to assure sufficient core and containment cooling may include:

- Reduction of flow (consistent with delivering the required ECCS flow) through the strainers to reduce head loss and extend the time for debris deposition.

The RHR and Core Spray systems can be throttled under emergency conditions. Also, if water level in the vessel is being maintained the Shift Supervisor can alternate the use of ECCS trains by securing of individual ECCS trains until they are required again to maintain RPV level or cooling. Support procedures are being revised to ensure operators are aware of the concern of possible ECCS strainer clogging and to throttle flow consistent with required needs. (Scheduled completion date: May 18, 1994)

- Operator realignment of existing systems to allow backflushing of clogged strainers.

Under present design configurations there are no means to effectively backflush the ECCS system suction strainers. NYPA staff is actively involved with the BWR Owners Group on this issue and is awaiting final generic resolution. In the interim, NYPA believes the low probability of the postulated event, leak-before-break considerations, and that the EOPs lead the operators through responses to any declining reactor water level with utilization of all available alternate water sources (discussed below), will assure safe operation. This position is consistent with the BWR Owners Group approved safety assessment (Reference 2).

- Operator realignment of existing systems to allow injection to the core from water sources other than the suppression pool.

Sources of RPV injection from water sources other than the suppression pool include the feed and condensate system, CRD, HPCI, RCIC, SLC, RHR service water cross-tie, fire water cross-tie, and condensate transfer. The EOP for RPV control directs operation of alternate sources of injection if operators determine that RPV water level cannot be maintained above the top of active fuel (TAF). The use of the RHR service water cross-tie can supply an inexhaustible amount of water to the reactor from Lake Ontario. The fire water cross-tie provides an alternate method for injecting water into the RPV or primary containment for containment cooling by utilizing the fire protection pumps as the motive force. The use of this system would allow a diesel fire pump to provide approximately 1000 gpm of low pressure water to the reactor via the RHRSW unlimited make-up cross tie to RHR in the event of a sustained loss of AC power (Station Blackout). The use of other alternate systems will provide operators with additional time to mitigate this event.

- Intermittent operation of the containment sprays, when possible, to reduce the transport of debris to the strainers.

JAF EOPs require intermittent operation of containment sprays. The Operators are directed to initiate drywell spray when containment pressure exceeds 16 psig (note: other considerations are required prior to initiation of spray) and are directed to secure drywell spray when pressure drops below 2.7 psig. The downcomers at JAF have missile deflection shields and are located 18 inches off the containment floor. This configuration will minimize debris transport to the suppression pool from containment spray actuation.

Based on the above, NYPA has determined that the EOPs do not require revision. However, the following supporting procedures will be revised to include a caution or note to notify operators of the potential for strainer clogging and to adjust flow consistent with required needs to mitigate the clogging:

- OP-13 Residual Heat Removal System
- OP-14 Core Spray System
- OP-15 High Pressure Coolant Injection System
- OP-19 Reactor Core Isolation Cooling System

Procedure revisions will be completed by May 18, 1994.

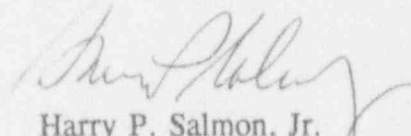
Additional mitigating activities/conditions are:

- During February, 1992, divers inspected and cleaned the torus. This inspection included visual verification the ECCS pump suction strainers were intact and not blocked.
- A 360° inspection of the torus for sunken debris was conducted in October, 1992, by divers. Foreign material encountered during the inspection was removed.
- As part of JAFs torus coating program the torus is routinely de-sludged and inspected. The torus is scheduled to be de-sludged during the next refueling outage (November, 1994).

NYPA is actively participating in the BWR Owners Group effort to obtain a final resolution to this issue. These actions being taken by NYPA are consistent with the recommendations of the BWR Owners Group and actions taken by other BWRs in the industry.


If you have any questions, please contact Mr. A. Zaremba, of my staff.

Very truly yours,


Harry P. Salmon, Jr.
Resident Manager

STATE OF NEW YORK
COUNTY OF OSWEGO

Subscribed and sworn to before me
this 11th day of April 1994.


Notary Public

TAMMY L. DANN 4985563
Notary Public, State of New York
Qualified in Oswego County
Commission Expires 8/19/95

cc: See next page

cc: Regional Administrator
U.S. Nuclear Regulatory Commission
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Mr. Brian C. McCabe
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Attachment 1
List of Commitments
JAFP-94-0228

Number	Commitment	Due Date
JAFP-94-0228-01	All JAF operations personnel will read NRCB 93-02 Supplement 1.	May 18, 1994
JAFP-94-0228-02	All JAF operations personnel will attend classroom and simulator training regarding NRCB 93-02 Supplement 1.	May 18, 1994
JAFP-94-0228-03	Engineering Support Personnel who have Emergency Response Organization responsibilities will read NRCB 93-02 Supplement 1.	May 18, 1994
JAFP-94-0228-04	<p>Operations department will revise the following operating procedures:</p> <ul style="list-style-type: none"> OP-13 Residual Heat Removal OP-14 Core Spray System OP-15 High Pressure Coolant Injection System OP-19 Reactor Core Cooling Isolation System <p>The revision will include a caution or note to notify operators of the potential for strainer clogging and to adjust flow consistent with required needs to mitigate the clogging.</p>	May 18, 1994
JAFP-94-0228-05	All engineering support personnel will attend classroom training regarding NRCB 93-02 Supplement 1.	June 30, 1994