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SUBJECT: Responds to NRC Bulletin 96-003, "Potential Plugging of Emergency Core Cooling Suction Strainers by Debris in Boiling-Water Reactors."

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November 4, 1996
NMP2L 1670

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE: Nine Mile Point Unit 2
Docket No. 50-410
NPF-69

Subject: *NRC Bulletin 96-03, "Potential Plugging Of Emergency Core Cooling Suction Strainers By Debris In Boiling-Water Reactors."*

Gentlemen:

By letter dated May 6, 1996, the Commission issued NRC Bulletin 96-03, "Potential Plugging of Emergency Core Cooling Suction Strainers by Debris in Boiling-Water Reactors." Bulletin 96-03 was issued to have licensees implement appropriate procedural measures and plant modifications to minimize the potential for clogging of Emergency Core Cooling System (ECCS) suppression pool suction strainers by debris generated during a Loss-Of-Coolant Accident (LOCA). Also, the Bulletin required that licensees report to the Commission within 180 days as to whether, and to what extent, the requested actions would be taken and to notify the Commission when actions associated with this Bulletin were complete. All licensees were requested to implement these actions by the end of the first refueling outage starting after January 1, 1997. The purpose of this letter is to provide our response to Bulletin 96-03.

As indicated in our response to Bulletin 93-02, Supplement 1, "Debris Plugging of Emergency Core Cooling Suction Strainers," the majority of insulation used on piping and equipment located in the Nine Mile Point Unit 2 (NMP2) drywell is reflective metal insulation (RMI). RMI is an all-metal construction-type insulation consisting of a stainless steel inside and outside jacket which encapsulates multiple layers of metal insulation material. The RMI utilized at NMP2 has primarily stainless steel inner foils. Only the under vessel insulation surrounding the CRDs, supplied by General Electric, contains aluminum inner foils. Min-K and Temp-Mat insulation is used for special and limited applications. Specifically, Min-K is a powder type (non-fibrous) insulation used where space is limited, and is encapsulated in stainless steel so as to be watertight. Temp-Mat insulation is a borated, spun glass, blanket-type insulation encapsulated in stainless steel. This insulation is used in limited applications on mainsteam, feedwater, and high pressure and low pressure core spray nozzle penetrations in the biological shield in the NMP2 drywell. Our response also described the series of unlikely occurrences that would be required to transport any insulation debris from the drywell to the suppression pool strainers following an accident. Barriers to debris being transported to the strainers include the insulation design, physical obstructions, and low strainer approach velocities.

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As discussed in our response to Bulletin 95-02, "Unexpected Clogging of a Residual Heat Removal Pump Strainer While Operating in Suppression Pool Cooling Mode," current NMP2 procedures establish the overall controls for foreign material exclusion (FME) measures, including material accountability for activities in the suppression chamber. FME for the drywell is accomplished via housekeeping inspections, final closure inspections, and appropriate training. Accordingly, foreign material was not expected to be left in the drywell or suppression pool. Noted in our response was that the suppression pool was cleaned in the Spring 1995 refueling outage (RFO4) and would be inspected during the Fall 1996 (RFO5) refueling outage. Based on this inspection, a program for periodic cleaning and inspection of the suppression pool would be developed. Also noted was that an inspection of the ECCS and Reactor Core Isolation Cooling (RCIC) suction strainers indicated no significant debris.

Based on the above, and as explained in more detail in our responses to Bulletin 93-02, Supplement 1, and Bulletin 95-02, NMP2 is considered to have a low fibrous debris source term. NMPC believes that the low debris source term, together with the relatively large, stacked disk suction strainers used at NMP2, support the conclusion that the strainers are adequately sized to support the ability of ECCS systems to meet the criteria of 10CFR50.46. NMPC will validate the design of our strainers using the guidance provided in the Boiling Water Reactor Owners Group (BWROG) developed, Utility Resolution Guidance (URG) for Resolution of ECCS Suction Strainer Blockage. The URG is scheduled to be sent to the Commission in late 1996 with the Commission's SER expected sometime in early 1997. The adequacy of our strainer design will be confirmed using the approved URG document. If the adequacy of our strainers cannot be confirmed, alternative actions will be evaluated and implemented (e.g., larger strainers). The required actions will be completed prior to startup from our 1998 outage (RFO6) which is consistent with the schedular requirements of Bulletin 96-03. NMPC will continue to adhere to our commitment made in response to Bulletin 95-02 to periodically inspect and clean the suppression pool, and to trend ECCS pump suction pressure.

Although the suppression pool was cleaned in RFO4, the Fall 1996 outage inspections found various debris floating within the submerged portions of the suppression chamber downcomers. (It should be noted that NMP2's pool is stainless steel lined and this inspection indicated a low rust input after one cycle). The NMP2 downcomers consist of 121 pipes open to the drywell and submerged below the low water level of the suppression pool thus providing a flow path for uncondensed steam into the pool. The function of the downcomers is to relieve pressure developed in the drywell into the suppression pool in a "pressure suppression" function. Blast deflector plates, which prevent direct blowing of steam during a LOCA, are positioned directly over the upper opening of the downcomers thus inhibiting direct observation of the downcomer interior or water surface approximately 41 ft. below. The debris found was not removed during our Spring 1995 cleaning in that no consideration was given to buoyant material potentially being suspended within the submerged portion of the downcomers. Niagara Mohawk has inspected each downcomer and cleaned as required. Also identified during our inspection activities were what are believed to be initial construction caps on seven of the downcomers. This condition has been reported to the Commission and will

result in a Licensee Event Report (LER). The LER will provide a detailed description, analyses, root cause, and corrective actions relative to these conditions. The corrective actions will include consideration of improvements to the FME program to prevent further introduction of unwanted material into the suppression pool. Although these oversights occurred, we are confident NMP2's design (i.e., mostly RMI, etc.), pool cleanings (RFO4 and RFO5), periodic suppression pool inspections and any required cleaning, and training and FME controls will preserve the operability of the ECCS suction strainers. The above events have been discussed at BWROG ECCS Suction Strainer Committee meetings to assure industry awareness.

Very truly yours,

C. D. Terry
Vice President - Nuclear Engineering

CDT/JMT/kap

xc: Mr. H. J. Miller, NRC Regional Administrator
Mr. S. S. Bajwa, Acting Director, Project Directorate I-1, NRR
Mr. B. S. Norris, Senior Resident Inspector
Mr. D. S. Hood, Senior Project Manager, NRR
Records Management

UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
Niagara Mohawk Power Corporation	)	Docket No. 50-410
	)	
Nine Mile Point Unit 2	)	

C. D. Terry, being duly sworn, states that he is Vice President - Nuclear Engineering of Niagara Mohawk Power Corporation; that he is authorized on the part of said Corporation to sign and file with the Nuclear Regulatory Commission the document attached hereto; and that the document is true and correct to the best of his knowledge, information and belief.

C. D. Terry
Vice President - Nuclear Engineering

Subscribed and sworn before me,
in and for the State of New York
and the County of Oswego,
this 4th day of November, 1996.

My Commission expires: 4/2/98

Eunice B. Naklick
NOTARY PUBLIC

Eunice B. Naklick #4964683
Notary Public, State of New York
Qualified in Jefferson County
My Commission Expires April 2 1998

Sworn to before me this [illegible]

Notary Public, State of New York

Qualified in Jefferson County

My Commission Expires April 2[illegible]