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SUBJECT: Discusses info re NRC Bulletin 95-002, "Unexpected Clogging Of RHR Pump Strainer While Operating In Suppression Pool Cooling Mode."

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TITLE: NRC Bulletin 95-02 Unexpected Clogging of RHR Pump Strainer While Ope

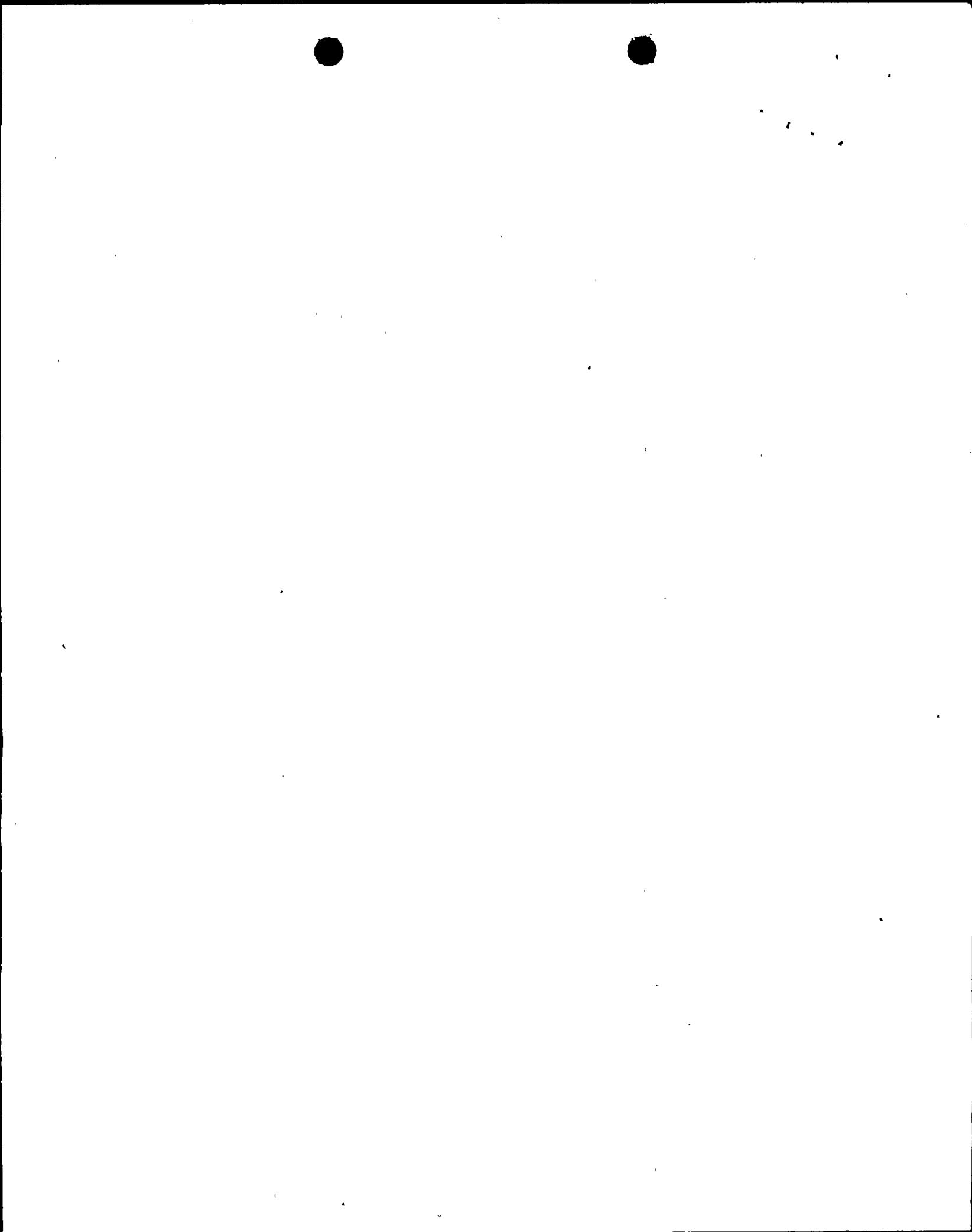
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CARL D. TERRY
Vice President
Nuclear Engineering

November 16, 1995
NMP2L 1593

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 95-02, "Unexpected Clogging of a Residual Heat Removal (RHR) Pump Strainer While Operating in Suppression Pool Cooling Mode"*

Gentlemen:

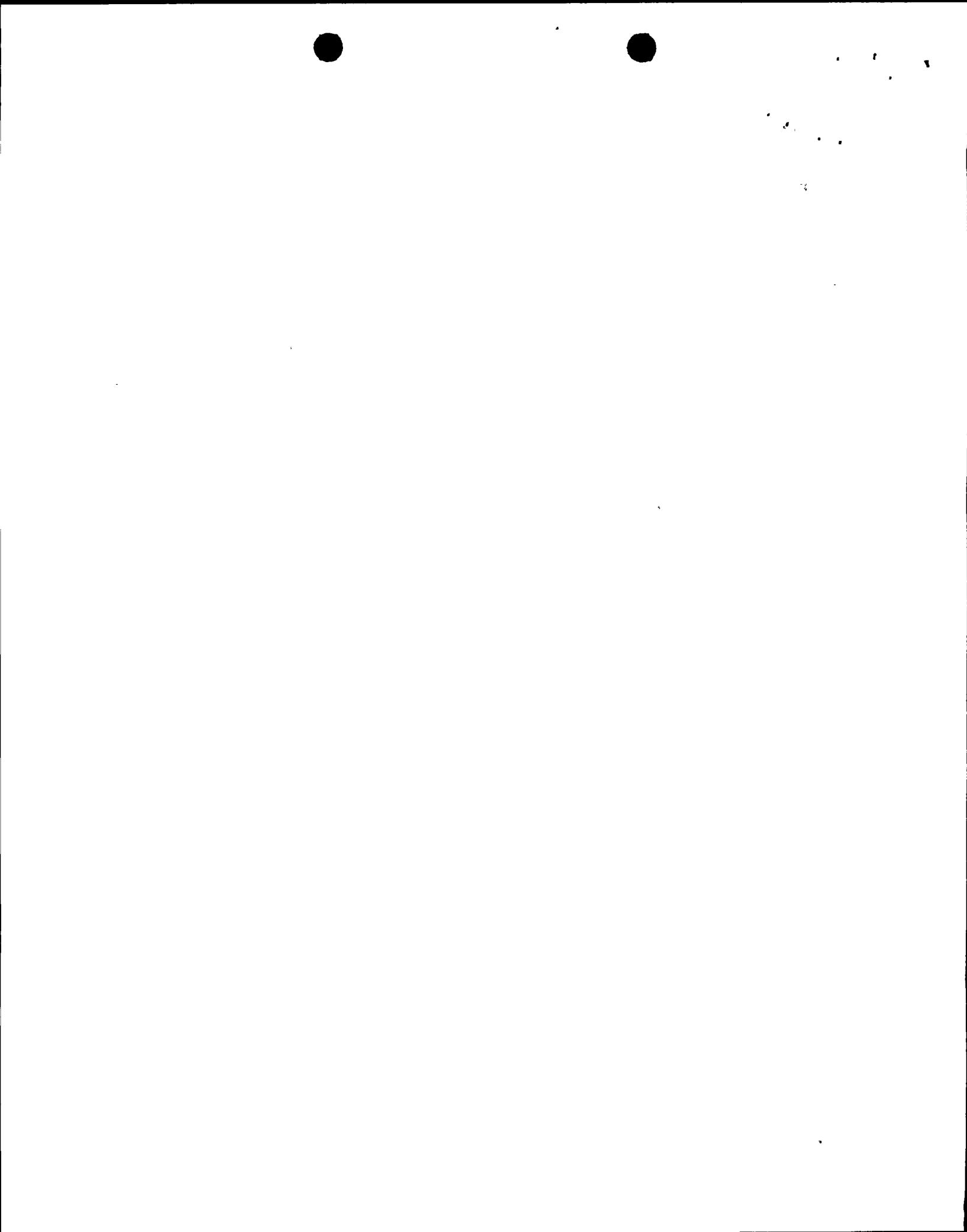
On October 17, 1995, the Commission issued NRC Bulletin 95-02, "Unexpected Clogging of a Residual Heat Removal (RHR) Pump Strainer While Operating in Suppression Pool Cooling Mode," to:

- 1) Alert addressees to complications experienced during a recent event in which a licensee initiated suppression pool cooling in response to a stuck-open safety relief valve (SRV) and subsequently experienced clogging of one RHR pump suction strainer;
- 2) Request addressees to evaluate the operability of their emergency core cooling system (ECCS) and other pumps which draw suction from the suppression pool while performing their safety function, and verify the operability evaluation through testing and inspection.
- 3) Require that addressees report to the NRC whether and to what extent they have complied with the requested actions. In addition, require a second report indicating completion of confirmatory test(s) and inspection(s) and providing the test results by addressees that have complied with the requested actions, or indicate completion of any proposed alternative course of action by addressees that have not complied with the requested action.

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Page 2

Niagara Mohawk has investigated each of the requested actions for applicability to Nine Mile Point Unit 2. The enclosure to this letter provides the required report detailing programs and initiatives currently in place to address this issue, and actions planned for the future.

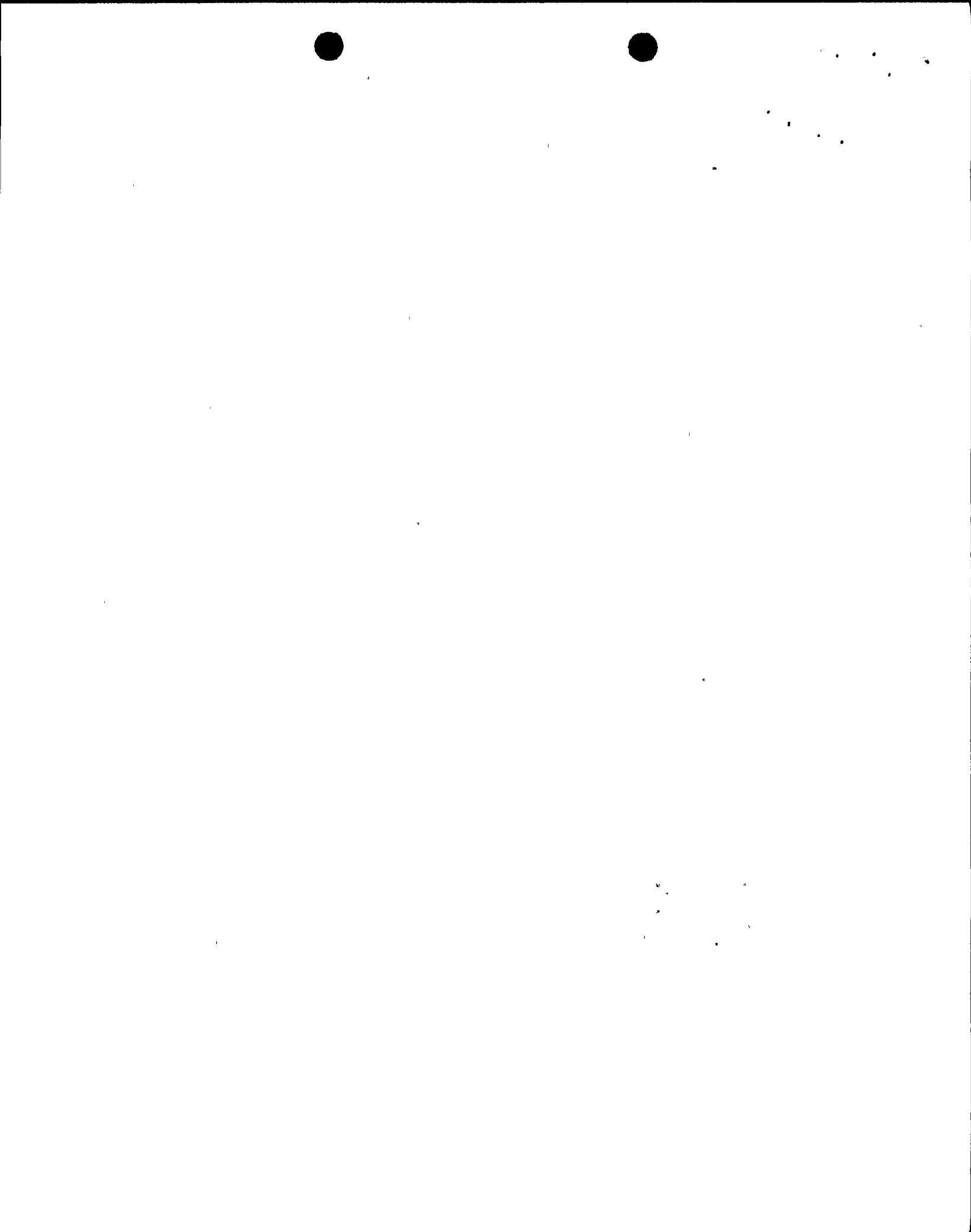
Very truly yours,



C. D. Terry
Vice President - Nuclear Engineering

CDT/WM/lmc
Enclosure

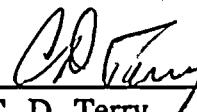
xc: Regional Administrator, Region I
 Mr. B. S. Norris, Senior Resident Inspector
 Mr. L. B. Marsh, Director, Project Directorate I-1, NRR
 Mr. G. E. Edison, Senior Project Manager, NRR
 Records Management



UNITED STATES NUCLEAR REGULATORY COMMISSION

In the Matter of)
Niagara Mohawk Power Corporation) Docket No. 50-410
Nine Mile Point Nuclear Station Unit No. 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 16 day of November, 1995

My Commission expires: 9/30/97

Susan M. Lawton
NOTARY PUBLIC

SUSAN M. LAWTON
Notary Public, State of New York
No. 4838667
Qualified in Oswego County 97
Commission Expires Sept. 30, 1997

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NINE MILE POINT UNIT 2 (NMP2) RESPONSE

NRC Requested Action

- 1) Verify the operability of all pumps which draw suction from the suppression pool when performing their safety functions (e.g., ECCS, 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 material that could clog the strainers since the pool was last cleaned.

NMP2 RESPONSE

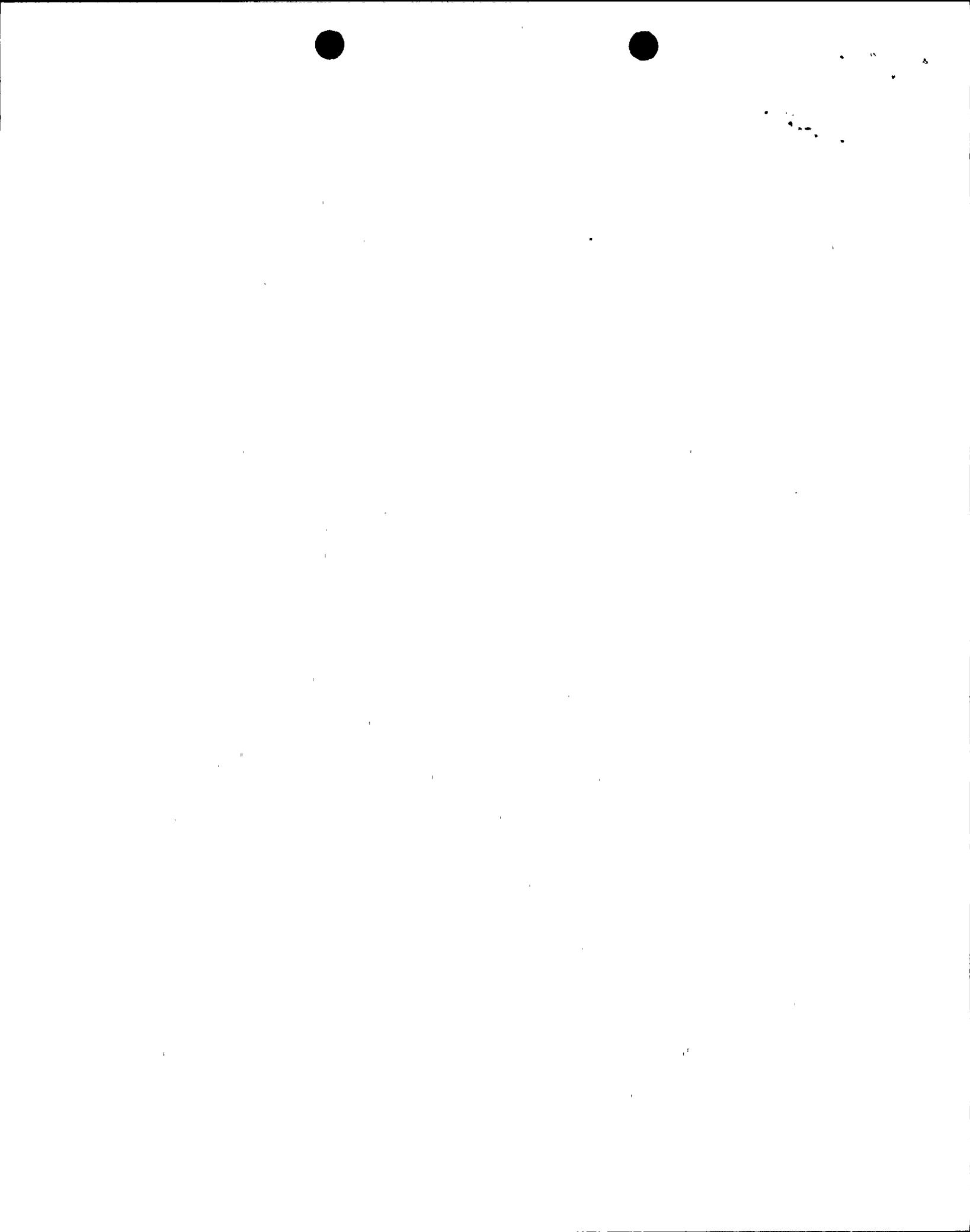
- 1) NRC Bulletin 95-02 is applicable to the following NMP2 ECCS systems: High Pressure Core Spray (HPCS), Low Pressure Core Spray (LPCS) and three loops of Residual Heat Removal (RHR). RHR functions include low pressure core injection, decay heat removal, containment spray, and containment cooling. The Reactor Core Isolation Cooling (RCIC) system is not an ECCS, but is considered within the scope of this requested action because it is capable of taking suction from the suppression pool during performance of a safety function.

The NMP2 suppression chamber was thoroughly cleaned and inspected prior to initial filling, in order to remove original construction debris. The ECCS and RCIC suction strainers and suppression pool at NMP2 were also thoroughly cleaned during the last refueling outage, in Spring 1995, which was the first such cleaning following initial plant startup. The cleaning of the pool and strainers was accomplished utilizing an underwater diver and vacuum system. All significant debris was removed from the pool. The ECCS and RCIC suction strainers were visually inspected following cleaning and this evolution was videotaped. No debris remained in the pool of a size or quantity that could plug the strainers. The strainers contained no significant debris nor has there been any indicated deterioration in pump Net Positive Suction Head (NPSH) after approximately 10 years of operation without thorough cleaning of the suppression pool or the pool water. Improved Foreign Material Exclusion (FME) practices were implemented for the containment during the Spring 1995 outage and an extensive walkdown and cleaning of the drywell was completed prior to restart from the outage.

Based on the suppression pool and strainer cleaning performed during the most recent refueling outage, improved FME practices following the cleanup and satisfactory system performance demonstrated by normal operation and testing, we conclude that the ECCS and RCIC systems are operable, and are not susceptible to common mode failure caused by suction strainer clogging.

NRC Requested Action

- 2) The operability evaluation in requested action 1 above should be confirmed through appropriate test(s) and strainer inspection(s) within 120 days of the date of this bulletin.



NMP2 RESPONSE

- 2) The evaluation provided in the response to action (1) provides assurance that there will be no operability concern during the present operating cycle. Based on the inspection, cleanup and recent improvements in FME practices, no additional actions are needed to confirm operability.

The RHR and LPCCS systems take suction from the suppression pool during surveillance testing and for ECCS functions. Although HPCS would take suction from the suppression pool during operation concurrent with low Condensate Storage Tank (CST) level or high suppression pool level, it is aligned to the CST during routine surveillance testing and ECCS function. Similarly, the RCIC system is normally aligned to the CST and is capable of transferring to the suppression pool on low CST level. The HPCS and RCIC suction strainers will therefore not become clogged during normal operation. Based on the suppression pool and strainer cleaning performed during the last refueling outage, there is no reason to suspect the presence of any debris on any of the suction strainers, including those for the HPCS and RCIC systems. Niagara Mohawk will continue to monitor the performance of ECCS systems taking suction from the suppression pool during routine surveillance testing. This monitoring, as part of the pump and valve inservice testing program, will provide indication of any significant deterioration in pump or suction strainer performance. NMP2 also has low suction pressure annunciators for ECCS pumps which take suction from the suppression pool. These alarms would alert operators to significant deterioration of pump NPSH if it were to occur. No additional tests or inspections are required prior to the next refueling outage currently planned for the Fall of 1996.

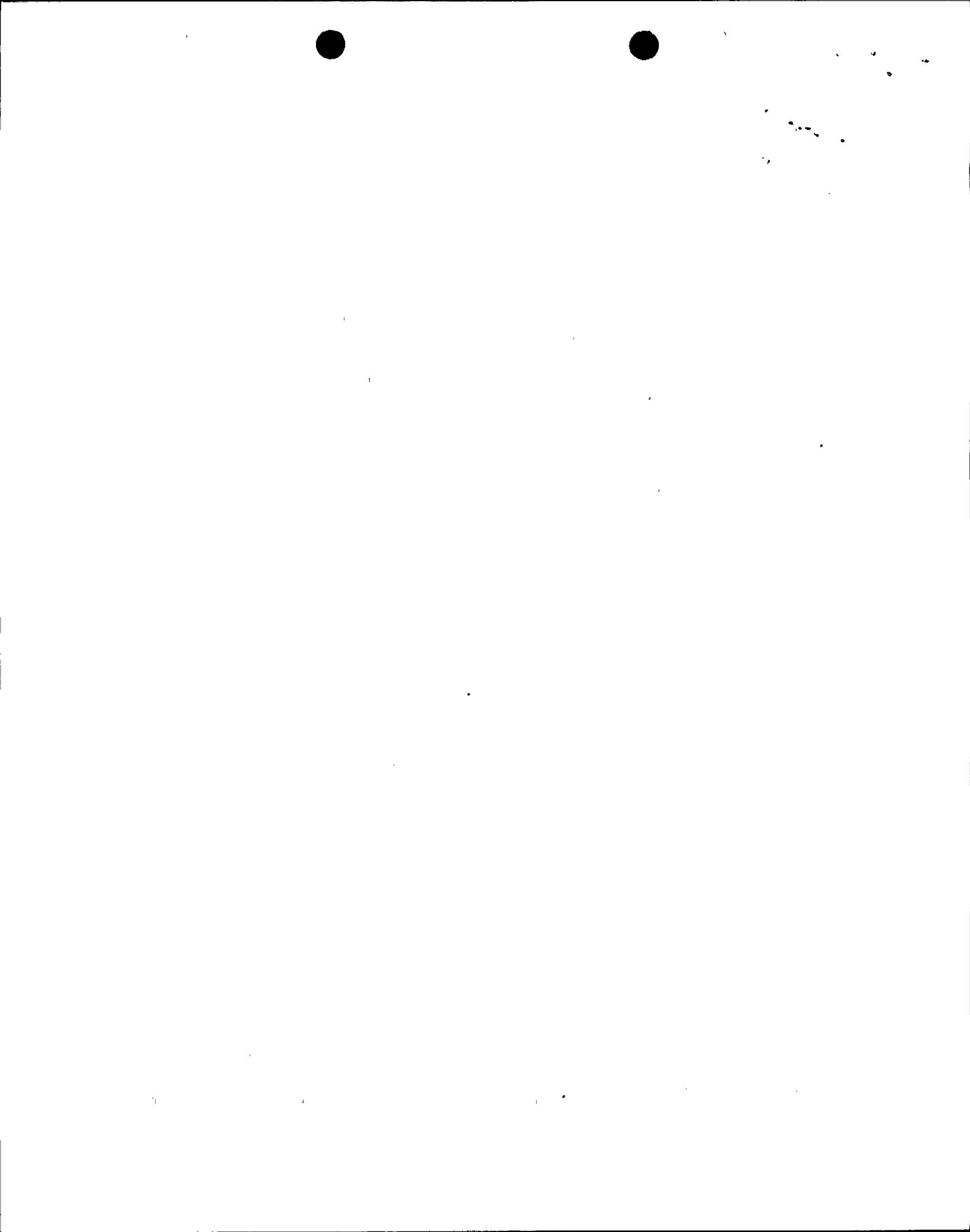
NRC Requested Action

- 3) Schedule a suppression pool cleaning. The schedule for cleaning the 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.

NMP2 RESPONSE

- 3) Based on previous experience at the unit, it is not expected that any significant amount of debris will be found in the suppression pool. The suppression pool will be visually inspected during the next refueling outage (Fall 1996). NMPC will develop a program for periodic cleaning and inspection of the suppression pool based on the inspection results and BWR Owners' Group guidance. As part of planning for refueling outages, a contingency plan will be developed for cleaning of the suppression pool should significant debris be identified during scheduled inspections.

These actions will maintain suppression pool cleanliness to ensure ECCS operability during future operating cycles.



NRC Requested 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 material that could potentially impact ECCS operation from being introduced into the suppression pool, and whether 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.

NMP2 RESPONSE

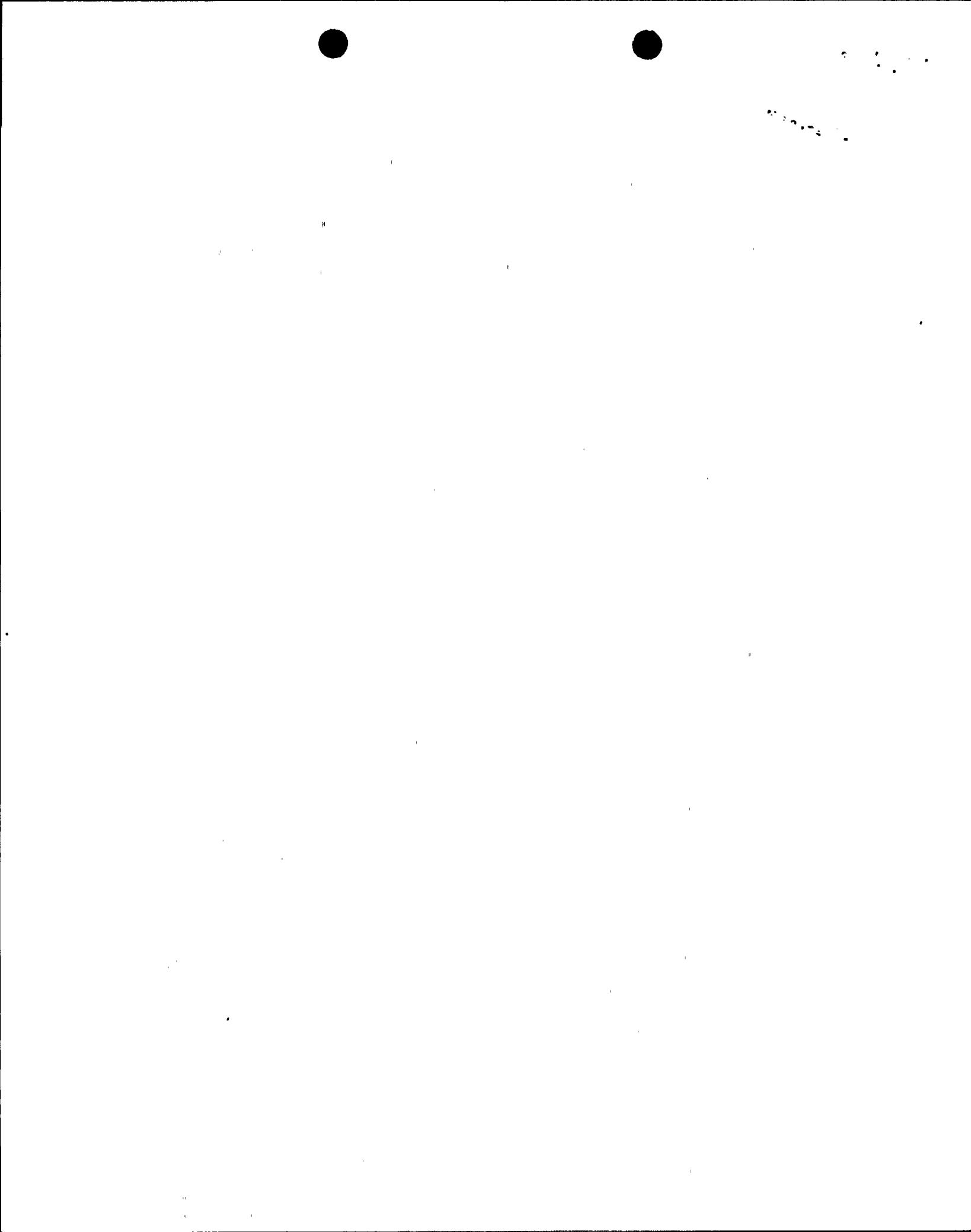
- 4) Administrative procedures establish the overall controls for FME. FME material accountability measures are used for activities in the suppression chamber. The drywell is not generally subject to material accountability measures. FME for the drywell is accomplished via housekeeping inspections and final closure inspection. System cleanliness inspections during work activities and walkdowns prior to system closure are performed for plant systems, including those systems which interface with the suppression pool. Drywell coordinators provide oversight of housekeeping activities during outages involving primary containment entries. During the Spring 1995 refueling outage, a suppression pool coordinator provided oversight of the cleanup and inspection, and reinforced material accountability requirements for outage activities in the suppression chamber.

A training lesson plan relative to local work zones and system cleanliness was prepared in December 1994. Prior to the Spring 1995 refueling outage, NMPC personnel and contract supervisors with outage work responsibilities were trained per the lesson plan.

Existing FME controls provide assurance that operability of the ECCS and RCIC systems will not be adversely affected by debris generated during normal operation. Improved FME training will be provided to NMPC and contractor personnel with outage work responsibilities, prior to the Fall 1996 refueling outage.

NRC Requested Action

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



NMP2 RESPONSE

- 5) NMP2 monitors ECCS and RCIC pump performance as part of the pump and valve inservice test program. Pump NPSH will be trended for the RHR and LPCS systems, which are normally tested by taking suction from the suppression pool. This trending will provide early indication of reduction in ECCS pump NPSH for those systems, which is indicative of potential strainer plugging.

SUMMARY

The following actions taken to date support the operability of the NMP2 ECCS and RCIC systems:

- Cleaning and inspection of the suppression pool and strainers during the Spring 1995 refueling outage;
- FME controls, reinforced during the Spring 1995 outage by use of a suppression pool coordinator and pre-outage training; and
- successful performance of the ECCS pumps taking suction from the suppression pool during inservice testing.

In addition, trending of pump NPSH will be performed for those ECCS pumps which take suction from the suppression pool during routine testing. An inspection of the suppression pool will be performed during the Fall 1996 outage, and a program for periodic inspection and cleaning will be developed. Enhanced FME training will be conducted prior to the Fall 1996 outage.

These actions detailed above conform to the requests of the NRC as given in NRCB 95-02 and are consistent with the recommendations from the BWROG letter (BWROG-95083) as appropriate to NMP2.

