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SUBJECT: Provides 30-day response to GL 96-06, "Assurance of Equipment Operability & Containment."

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NIAGARA MOHAWK

GENERATION BUSINESS GROUP

NINE MILE POINT NUCLEAR STATION/LAKE ROAD, P.O. BOX 63, LYCOMING, NEW YORK 13093

February 7, 1997
NMP1L 1178

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

RE:	Nine Mile Point Unit 1	Nine Mile Point Unit 2
	Docket No. 50-220	Docket No. 50-410
	DPR-63	NPF-69

Subject: *NRC Generic Letter 96-06, "Assurance of Equipment Operability and Containment"*

Gentlemen:

On September 30, 1996, the Commission issued NRC Generic Letter 96-06, "Assurance of Equipment Operability and Containment," to:

(1) notify addressees about safety-significant issues that could affect containment integrity and equipment operability during accident conditions,

(2) request that all addressees submit certain information relative to the issues that have been identified and implement actions as appropriate to address these issues, and

(3) require that all addressees submit a written response to the NRC relative to implementation of the requested actions.

Niagara Mohawk has reviewed the generic letter. NMP1 and NMP2 provided the requested 30-day written response in Niagara Mohawk's October 29, 1996, letter (NMP1L 1149).

On January 28, 1997, Niagara Mohawk indicated that additional time was required in order to complete the verification process associated with the 120-day written response. That letter (NMP1L 1179) indicated that the information requested by the NRC would be provided by February 7, 1997. Attachment A (Nine Mile Point Unit 1) and Attachment B (Nine Mile Point Unit 2) to this letter provide the requested 120-day written response detailing the additional actions that have been taken to address this issue.

Sincerely,

A072'/1

M. J. McCormick Jr.

M. J. McCormick Jr.
Vice President Nuclear Engineering

MJM/KLL/kap
Enclosure

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. 50-220
	)	Docket No. 50-410
Nine Mile Point Unit 1 and Unit 2	)	

M. J. McCormick, 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.

M. J. McCormick Jr.
M. J. McCormick Jr.
Vice President Nuclear Engineering

Subscribed and sworn before me in
and for the State of New York and
the County of OSWEGO,
this 7th Day of February, 1997.

My Commission expires:

Joanne M. Watts
NOTARY PUBLIC

JOANNE M. WATTS
Notary Public, State of New York
No. 4822327
Qualified in Oswego County
Commission Expires May 31, 1998

ATTACHMENT A

NMP1 RESPONSE

On January 28, 1997, Niagara Mohawk indicated that additional time was required in order to complete the verification process associated with the 120-day written response. That letter (NMP1L 1179) indicated that the information requested by the NRC would be provided by February 7, 1997.

Nine Mile Point Unit 1 (NMP1) has reviewed NRC Generic Letter 96-06 and provides the following requested 120-day response.

REQUESTED INFORMATION:

Addressees are requested to determine:

1) if containment air cooler cooling water systems are susceptible to either waterhammer or two-phase flow conditions during postulated accident conditions;

2) if piping systems that penetrate the containment are susceptible to thermal expansion of fluid so that overpressurization of piping could occur.

Within 120 days of the date of this generic letter, addressees are requested to submit a written summary report stating actions taken in response to the requested actions noted above, conclusions that were reached relative to susceptibility of waterhammer and two-phase flow in the containment air cooler cooling water system and overpressurization of piping that penetrates containment, the basis for continued operability of affected systems and components as applicable, and corrective actions that were implemented or are planned to be implemented. If systems were found to be susceptible to the conditions that are discussed in this generic letter, identify the systems affected and describe the specific circumstances involved.

DESCRIPTION OF COOLING WATER SYSTEMS AT NMP1

At Nine Mile Point Unit 1, there is one containment cooling water system. A description of the Reactor Building Closed Loop Cooling System follows.

Reactor Building Closed Loop Cooling (RBCLC) System

The RBCLC System provides cooling water to the drywell air coolers and to the reactor recirculation pumps. The RBCLC System also provides cooling water to various other reactor auxiliary systems and components as well as various balance of plant systems and components which may contain radioactive fluids. The drywell air coolers maintain the temperature inside the primary containment during normal plant operation and are not credited for any post-LOCA heat removal function but may be used post-LOCA if available under Emergency Operating Procedures (EOPs). Therefore, the RBCLC cooling function inside the drywell is

not required post-LOCA, but the pressure boundary integrity of the RBCLC System is a safety-related function and is required post-LOCA for containment integrity.

Flow enters the primary containment to provide cooling water for equipment inside the drywell. Two RBCLC loops penetrate the primary containment, forming two closed loops. One loop services the recirculation pump seal and motor coolers, while the other services the drywell air coolers as well as the drywell equipment drain tank coolers.

As a closed loop system that penetrates primary containment, the RBCLC is provided with containment isolation valves to limit potential leakage of contamination from the drywell in the event of a LOCA. Each loop contains a self-actuating check valve on the supply line and a DC motor-operated valve in the return line. Each of these containment isolation valves is located outside the drywell. The DC motor-operated valves are remotely controlled from the control room and are not equipped with automatic closure circuits.

Postulated Accident (LOCA)

For a postulated accident condition, Loss of Coolant Accident (LOCA), concurrent with a Loss of Offsite Power (LOOP) at t=0, the RBCLC pumps and drywell air coolers power supplies are tripped and the reactor recirculation pumps trip and are not credited post-LOCA. However, the RBCLC System is used post-LOCA to provide longer term cooling water for the control room chillers, the Spent Fuel Pool System, and instrument air compressors. For the FSAR Chapter XV Design Basis Accident (DBA) case, at approximately t=11 minutes following the LOCA, the RBCLC Pump #13 is manually started with power from the emergency diesel generators.

Operation of the drywell coolers can be initiated manually. This action is taken in response to EOP direction and credits only the "available cooling" capacity. As such, whether or not the associated equipment is operated, degradation of heat transfer performance does not compromise any safety limit.

RESPONSE TO ISSUE 1:

HYDRODYNAMIC LOADING OR A TWO-PHASE FLOW IN COOLING WATER PIPING

A. Reactor Building Closed Loop Cooling System to the Drywell Air Coolers (DBA LOCA with LOOP)

At NMP1, RBCLC is the cooling medium for the drywell air coolers and for the reactor recirculation pump motor and seals. The drywell air coolers power supply and the reactor recirculation pumps are tripped and are not credited post-LOCA.

The RBCLC cooling loop for drywell air cooler enters the drywell through check valve 70-95 (Penetration X-12B) and exits the drywell through the normally open MOV 70-94 (Penetration X-13B). The RBCLC cooling loop for reactor recirculation pumps

enters the drywell through Check Valve 70-93 (Penetration X-157) and exits the drywell through the normally open MOV 70-92 (Penetration X-156).

The NMP1 RBCLC is not susceptible to either waterhammer or two-phase flow during a DBA LOCA w/LOOP. The RBCLC/TBCLC Makeup Tank located on Turbine Building Elevation 351 ft. provides a hydrostatic pressure on the RBCLC piping, such that the saturation pressure and temperature (range 284°-300°F) is above the highest calculated drywell temperature following a DBA LOCA (281°F).

Consequently, no boiling or voiding will occur. Therefore, these systems are not susceptible to waterhammer or two-phase flow.

B. RBCLC System to Recirculation Pumps (Small Break LOCA w/LOOP)

There is a potential for boiling and two-phase flow conditions on the RBCLC side of the recirculation pump seal coolers and associated piping. However, no significant hydrodynamic loads are associated with this scenario because the RBCLC piping normally remains unisolated and natural circulation flow develops in the system. This flow rate is sufficient to prevent any large void formation. The seal cooling heat load is small and the two-phase conditions remain concentrated in the pump cooler and associated connection piping. The RBCLC piping heatup is significant such that the RBCLC liquid temperature going into the coolers approaches 250°F. (The saturation temperature of RBCLC at the cooler location is approximately 300°F). However, the natural circulation prevents any large void formation, and the small temperature difference between the liquid and vapor phases reduces the potential for any significant condensation load during this process or upon re-initiation of pumped flow in the system.

RESPONSE TO ISSUE 2:

OVERPRESSURIZATION OF PIPING DUE TO THERMAL EXPANSION

The evaluation of thermally-induced overpressurization was separated into two equipment types: A) the primary containment penetration and associated piping between the inboard and outboard isolation valves, and B) piping segments inside primary containment.

A. Primary Containment Penetrations

The evaluation of thermally-induced overpressurization included a review of every containment penetration. A screening process was utilized to determine if piping systems that penetrate the containment are susceptible to thermal expansion of fluid so that overpressurization of piping could occur. The following penetrations were screened from the population.

1. Penetrations that do not contain incompressible fluid (i.e., electrical, air, nitrogen, spare).

2. Penetrations that are open-ended to the free-air space of the containment.

3. Penetrations that are in communication with the Reactor Pressure Vessel (RPV) that may contain fluid but are open-ended and remain open-ended to the RPV.

Penetrations containing compressible fluids (i.e., air, nitrogen) and electrical, spare, and penetrations open-ended to the free space of containment were excluded from further evaluation as no fluid exists in these penetrations. Penetrations open-ended to the RPV were also excluded from further evaluation.

The remaining incompressible fluid-filled penetrations were screened using the following criteria to determine if the pipe system was susceptible to thermally-induced overpressurization.

1. If the fluid within the piping during normal operations was "hot" (above 281°F) at t=0 for the LOOP/LOCA, it was considered not susceptible to overpressurization due to thermal expansion because the fluid was hotter than the drywell temperature under the LOCA condition. Off-normal system lineups (allowing fluids to cool) were also addressed for these applications.

2. If the fluid-filled piping system was designed with adequate relief capacity, it was considered not susceptible to overpressurization due to thermal expansion.

Based on the above criteria, the following fluid-filled penetrations or associated piping systems were determined to be potentially susceptible to overpressurization due to thermal expansion. The design of these penetrations has no thermal relief provided; and piping is uninsulated. This design exposes most of the piping to a condensing steam environment during a LOCA. NMP1 LER 96-13 was submitted to the NRC on January 13, 1997, to address this potential for thermal overpressurization for the penetrations that were considered to be outside the design basis.

PENETRATION	SYSTEM
X-7	Shutdown Cooling
X-8	Shutdown Cooling from the Reactor
X-25	Drywell Equipment Drain
X-26	Drywell Floor Drain
X-139	Post-Accident Sampling
X-238	Core Spray High Point Vent

In addition, the following penetrations or associated piping systems are identified for evaluation for the effects of overpressurization.

PENETRATION	SYSTEM
X-13A	Core Spray
X-14	Core Spray
X-12B	Reactor Building Closed Loop Cooling
X-13B	Reactor Building Closed Loop Cooling
X-156	Reactor Building Closed Loop Cooling
X-157	Reactor Building Closed Loop Cooling
X-9	Reactor Water Cleanup
X-154	Reactor Water Cleanup
X-122	Service Water

BASIS FOR OPERABILITY

1. Penetration X-7 (Shutdown Cooling)

Following a LOCA concurrent with LOOP, the heat up transient of the penetration increases from an assumed initial 120°F (nominal drywell temperature for the lower drywell) to 160°F within 10 minutes, and slowly increases the temperature to 180°F as the drywell heats up during long-term torus cooling following the EOP required actions. Leakage is required to maintain the pressure within design allowables for these assumptions. The leakage data for this penetration shows a total leakage of 3 gpm. The isolation valves in this line are leakage tested with water at 35 psi. The analysis shows that a leakage of 0.3 gpm, is required to maintain the calculated pressure at less than 2,000 psi, which maintains the pipe stress at less than its yield strength.

Therefore, the penetration is operable.

2. Penetration X-8 (Shutdown Cooling from the Reactor)

Following a LOCA, the heatup transient for the associated piping increases the temperature from an assumed initial 120°F (nominal drywell temperature for the lower drywell) to 160°F within 10 minutes, and then slowly increases the temperature to 180°F as the drywell heats up during the long-term torus cooling following the EOP required actions. Leakage is required to maintain the pressure within design allowables for the assumptions. The leakage data for the valve at this penetration shows a total leakage of 0.672 gpm. The isolation valves in this line are leakage tested with water at 35 psi. The analysis shows that a leakage of 0.3 gpm is required to maintain the calculated pressure at less than 2,000 psi, which maintains the pipe stress at less than its yield strength.

Therefore, the penetration is operable.

3. Penetration X-25 (Drywell Equipment Drain)

Following a LOCA, the heatup transient for this penetration increases the temperature from an assumed initial temperature of 120°F to 160°F within 10 minutes, and slowly increases the temperature to 180°F as the drywell heats up during the long-term torus cooling following the EOP required actions. This heatup would cause stresses in excess of the piping yield stress if there were no leakage paths in the isolation valves. The outside isolation valves are globe valves oriented such that the internal pressure is below the seat. The valve actuator is an Air-Operated Valve (AOV), air to open, spring to close. The evaluation of this penetration has determined that the valve would act as a relief device and maintain piping at less than 150 psig, which is within the normal code allowables.

Therefore, the penetration is operable.

4. Penetration X-26 (Drywell Floor Drain)

The heatup transient for this penetration increases the temperature from the assumed initial temperature of 120°F to 160°F within 10 minutes, and slowly increases the temperature to 180°F as the drywell heats up during the long-term torus cooling following the EOP required actions. The results of this heatup would cause stresses in excess of piping yield stresses if there were no leakage paths in the isolation valves. The outside isolation valves are globe valves oriented such that the internal pressure is below the seat. The valve actuator is an AOV, air to open, spring to close. The evaluation of this penetration has determined that the valve would open and act as a relief device and maintain piping at less than 150 psig, which is within the normal code allowables.

Therefore, the penetration is operable.

5. Penetration X-139 (Post-Accident Sampling)

Following a LOCA, the piping fluid temperature increases from 135°F to a calculated maximum temperature for this penetration of 255°F. This maximum temperature occurs in the initial 300 seconds of the DBA. Adequate leakage could not be demonstrated and, accordingly, the following administrative controls ("a" or "b") were established or verified.

a. System Secured: With the Containment Isolation Valve CIV-110-127 inoperable (closed and marked up), the piping between CIV-110-127 and CIV-110-128 is drained through Valve 110-261 to create a sufficient expansion volume to avoid overpressurization and maintain the pipe pressure within the design pressure. This expansion volume is validated on a periodic basis by Operations work orders.

or:

b. System in Operation: Flow is established through Valves CIV-110-127 and CIV-110-128 in accordance with normal procedures and the piping temperature is maintained above 281°F. The configuration of the associated valves is being controlled via Operations tag-outs to maintain the required valve configuration to assure flow.

Therefore, based on administrative controls "a" or "b", the potential for overpressurization does not exist and the penetration is operable.

6. Penetration X-238 (Core Spray High Point Vent):

Following a LOCA, the piping fluid temperature increases from 135°F to a calculated maximum temperature for this penetration of 255°F. This maximum temperature occurs in the initial 300 seconds of the DBA.

Evaluation of the outboard AOVs 40-32 and 40-33 has determined that these valves are globe valves which are air to open, spring to close. These evaluations have determined that the valves are oriented such that the pressure buildup would create a force which tends to act against the closure spring. The calculations show that the pressure under the seat required to equal the full closed spring force is 4921 psi. Calculations of the piping and valves between 40-31 and 40-33 and the piping between 40-30 and 40-32 have concluded that the ASME level C allowable stresses would not be exceeded for the design basis accident provided the pressure remains below 6200 psi. The pressure gage installed on the line is not the weak link. The gauge has a burst pressure of 20,000 psi per telecon with the vendor, which assures integrity of the gage and no breach of the pressure boundary. The associated isolation valves were evaluated and the maximum pressure of 6,000 psi was determined to be within level C allowables.

The piping design basis for this system is ASME III Class 2. The DBA loading on the containment penetration piping and isolation valves is a result of a faulted event. Since the normal function of the containment is to mitigate the LOCA, a conservative interpretation of the code would dictate that level A or B allowables be used for design basis analyses. However, relative to operability, GL 91-18 guidance allows the use of Appendix F to ASME III. Consistent with this guidance, ASME faulted allowable limits establish operability. The analysis shows that the AOVs begin to lift prior to stresses exceeding level C allowables. The analysis of the valve opening force shows that at 6,200 psi the valve is 11% open.

The leakage evaluations which were performed have demonstrated that leakage on the order of 0.15 gpm is sufficient to terminate a pressure rise. Based on the valve stem position versus Cv, an 11% open 1 in. valve with a differential pressure of 6200 psi would provide the required 0.15 gpm flow rate with excess margin. In addition, significant margin remains since level D allowables provide for a maximum pressure of

8,200 psi. The margin between level C and level D allowable stresses provide adequate margin to account for uncertainties associated with the definition of flow rate and valve open position versus pressure.

To maintain this penetration operable the valve alignment has been changed to assure the AOV can function as a relief device. Specifically, the drain valves downstream of the AOV are locked open per a Design Document Change and Operations procedural requirements.

Therefore, the penetration is operable.

7. Core Spray System (Penetration X-13A, X-14)

The volume of piping between the inboard injection valves (Loop 11: 40-10 and 40-11; Loop 12: 40-01 and 40-09) and the outboard test valve (Loop 11: 40-06; Loop 12: 40-05) and outboard high pressure check valve (Loop 11: 40-13; Loop 12: 40-03) is fluid-filled and potentially susceptible to thermally-induced overpressurization.

a. For the DBA LOCA with concurrent LOOP scenario no significant heatup of this piping will occur since core spray injection occurs within 35 seconds. For the small break conditions the drywell temperature is not as severe, but the time delay prior to core spray injection can be significant. During this time period the line will experience a heatup and the potential for overpressurization. The pressure locking modification relief line from the bonnet is adequate to relieve the potential pressure due to thermal expansion of the trapped fluid. A qualitative assessment of the leakage past the outer disc based on the seat area is applied to determine operability. The differential pressure required to reach a seat stress of zero is approximately 687 psid (pipe pressure 1,717 psig). The level D allowable stress for the piping in these penetrations is 3,200 psi. The available seat area circumference is large (approximately 35 inches) and therefore leakage would be expected over the entire disc seating area. Since the leakage required is small (less than 0.3 gpm is sufficient to relieve the pressure) the available leakage flow path is sufficient to ensure that the pressure would be relieved prior to the piping exceeding the ASME level D allowable stress.

b. This core spray piping segment has 5 isolation valves. The potential pressure buildup would act against two injection valves which have the pressure relief feature discussed above, a 12 inch check valve, a 1" globe valve, and a 6" flex wedge disc with the same type of pressure locking pressure relief. Operability of this piping segment is adequately assured based on the seat stress evaluation and multiple pressure relief paths available.

c. The long-term acceptability of this pressure relief with regard to the final GL 96-06 analysis/modifications is under study and will be resolved as part of the long term resolution.

The pressure in the system will stay within ASME level D allowable stress. Therefore, the penetrations are operable.

8. Reactor Water Cleanup System (penetration X-9, X-154)

The evaluation of susceptibility to thermally-induced overpressurization concluded that the RWCU piping between 33-02 and 33-04 and the piping between 33-01 and 33-03 is not susceptible during normal operation since the piping fluid is hot (420°F to 525°F). The system is allowed to be secured for time durations approaching 2 to 3 days for normal system maintenance and testing. The piping segment and the penetration are insulated with 2" mirror insulation. Thermal analysis has concluded that the piping fluid could cooldown to drywell ambient conditions within a 24 to 48 hour period and minor leakage would tend to equalize the pressure to reactor operating pressure as the cooldown progresses. Therefore, the RWCU penetrations are susceptible during extended maintenance system outages.

A LOCA heatup analysis of the insulated RWCU piping has been performed assuming the initial condition of the pipe fluid is in equilibrium with the average drywell temperature. This analysis has concluded the following:

a. The RWCU penetration X-154 piping heatup would be limited to delta T of approximately 10 degrees F following a LOCA (the analysis calculated the heatup for a 24-hour period post LOCA at which time equilibrium conditions were achieved). The piping and penetration components would remain within ASME level C acceptance limits without any leakage for this heatup condition.

b. The RWCU penetration X-9 heatup is slightly more severe since a larger surface area is exposed to the drywell atmosphere, however, due to the mirror insulation, the heatup rate is mild. The maximum temperature of 150°F (delta T = 30°F) was reached at t=14 hours. The initial 15 degree rise occurs within the first 3 hours. The piping internal pressure resulting from the 15 degree heatup thermal expansion is less than 2,700 psi (assuming zero isolation valve leakage) which results in ASME level D allowable stress in the pipe. The remaining 15 degree temperature rise occurs over 11 hours. This small heatup rate requires only minor isolation valve leakage (significantly less than typical measured Appendix J leakage for these penetrations) to maintain the pressure within ASME level D allowable limits for the maximum long-term DBA LOCA.

c. The measured appendix J leakage data is adequate to eliminate any pressurization of both the X-154 and X-9 penetration piping due to thermal expansion of the fluid resulting from this heatup. The evaluation assuming the potential pressurization of this piping to level D allowable stress is a conservative assessment intended to quantify the margin to account for any uncertainty associated with valve leakage under these thermal expansion conditions.

Based on this analysis, the RWCU piping and penetration X-9 and X-154 are operable.

B. Piping Segments Inside Containment

1. Reactor Building Closed Loop Cooling (Piping Associated with Penetrations X-12B, X-13B, X-156, X-157)

The RBCLC piping is not susceptible to thermally-induced overpressurization provided the motor operated containment isolation valves (IV) 70-92 and 70-94 remain open during the LOCA. In addition, the potential for hydrodynamic loads as a result of two-phase conditions in the RBCLC is eliminated provided IV 70-92 is not closed. Currently, isolation valves 70-92 and 70-94 are not required to be closed in a LOCA condition by any operating procedure or the EOPs. Operations Procedure lineups require these valves to be maintained open. These valves can be closed when containment isolation is required in the event of a breach in RBCLC inside the drywell. Under this condition the RBCLC piping would have been breached and the closure of the valves would not create a subsequent failure mode of the containment penetration isolation valves due to thermal expansion or hydrodynamic loads. Therefore, the penetrations are operable.

2. Service Water Connecting to the Drywell (Piping Associated with Penetration X-122)

Use of this existing connection requires the installation of a flexible hose to the downstream side of outboard valve 72-479 during refueling outage conditions. This piping would be susceptible to thermally-induced overpressurization of fluid-filled penetrations. However, the flexible line is disconnected and the penetration is drained prior to startup at the end of a refueling outage in accordance with the primary containment pre-startup checkoff procedure. Therefore, the penetration is not susceptible to overpressurization.

CONCLUSIONS

Design reviews and operability determinations were performed during the investigation of the concerns presented in Generic Letter 96-06. The results of the analyses follow.

1. There is a potential for a two-phase flow in the RBCLC system providing cooling to the recirculation pump seal coolers, but there are no hydrodynamic loads associated with the condition.

2. There is a potential for overpressurization in certain penetrations.

Operability determinations completed according to the guidance in Generic Letter 91-18 concluded that all of the analyzed penetrations were operable.

Containment penetrations X-7, X-8, X-25, X-26, X-139, and X-238 were determined to be outside their normal design basis. This condition was reported to the NRC in NMP1 LER 96-13 submitted on January 13, 1997. It was later determined that penetrations X-13A and X-14 were also outside their design basis. A telephone notification to the NRC was made on January 29, 1997. A Supplement to LER 96-13 will be submitted to provide further information concerning this condition. The operability of these eight penetrations, and the associated piping and isolation valves, was verified and documented in accordance with the guidelines provided in Generic Letter 91-18 and station procedures.

CORRECTIVE ACTIONS AND SCHEDULE

The corrective actions are as follows:

1. Operability determinations for the affected penetrations have been completed in accordance with Generic Letter 91-18 and station procedures. (Complete)

2. Administrative controls have been implemented to assure the operability of penetrations X-7, X-8, X-25, X-26, X-139, and X-238 will be maintained. Specific procedure changes will be developed, if required, by April 12, 1997, to strengthen administrative controls for these penetrations as necessary to ensure operability is maintained until permanent changes to these penetrations are implemented.

3. Submit Supplement to NMP1 LER 96-13 (February 28, 1997) to address issues reported in the 10CFR50.72 telephone notification which was made to the NRC on January 29, 1997.

4. Long-term resolution of these concerns will require additional detailed analyses to identify the potential need for plant modifications. Design changes, if required, will be implemented prior to restart from refueling outage RFO15.

ATTACHMENT B

NMP2 RESPONSE

On January 28, 1997, Niagara Mohawk indicated that additional time was required in order to complete the verification process associated with the 120-day written response. That letter (NMP1L 1179) indicated that the information requested by the NRC would be provided by February 7, 1997.

Nine Mile Point Unit 2 (NMP2) has reviewed NRC Generic Letter 96-06 and provides the following requested 120-day response.

REQUESTED INFORMATION:

Addressees are requested to determine:

1) if containment air cooler cooling water systems are susceptible to either waterhammer or two-phase flow conditions during postulated accident conditions;

2) if piping systems that penetrate the containment are susceptible to thermal expansion of fluid so that overpressurization of piping could occur.

Within 120 days of the date of this generic letter, addressees are requested to submit a written summary report stating actions taken in response to the requested actions noted above, conclusions that were reached relative to susceptibility of waterhammer and two-phase flow in the containment air cooler cooling water system and overpressurization of piping that penetrates containment, the basis for continued operability of affected systems and components as applicable, and corrective actions that were implemented or are planned to be implemented. If systems were found to be susceptible to the conditions that are discussed in this generic letter, identify the systems affected and describe the specific circumstances involved.

DESCRIPTION OF COOLING WATER SYSTEM AT NMP2

At Nine Mile Point Unit 2, there is one containment cooling water system. A description of the Reactor Building Closed Loop Cooling System follows.

Reactor Building Closed Loop Cooling (CCP) System

The CCP System provides cooling water to the drywell air coolers and to the reactor recirculation pumps. The CCP System also provides cooling water to various other reactor auxiliary systems and components as well as various balance of plant systems and components which may contain radioactive fluids. The drywell air coolers maintain the temperature inside the primary containment during normal plant operation and are not credited for any post-Loss of Coolant Accident (LOCA) heat removal function but may be used post-LOCA, if available, under Emergency Operating Procedures (EOPs). Therefore, the CCP cooling function inside

the drywell is not required post-LOCA, but the pressure boundary integrity of the CCP System penetrations is a safety-related function and is required post-LOCA for containment integrity.

Flow enters the primary containment to provide cooling water for equipment inside the drywell. Three CCP loops penetrate the primary containment, forming three closed loops. Two loops service the recirculation pump seal and motor coolers, while the third services the drywell air unit coolers.

As a closed loop system that penetrates primary containment, the CCP is provided with containment isolation valves inside and outside the primary containment to limit potential leakage of contamination from the drywell in the event of a LOCA/MSLB (Main Steamline Break).

Postulated Accident (LOCA/MSLB)

For a postulated accident condition, LOCA/MSLB, the primary containment isolation valves for the drywell air unit coolers and the Recirculation (RCS) pump/motor coolers close automatically. The operation of CCP is not required post-accident to provide cooling.

RESPONSE TO ISSUE 1:

HYDRODYNAMIC LOADING OR A TWO-PHASE FLOW IN COOLING WATER PIPING

A. Hydrodynamic Loading of Drywell Unit Cooler Piping

The ten drywell coolers and their associated instrumentation and controls comprise the Drywell Cooling Subsystem (DRS) of the Reactor Building HVAC System (HVR). During normal operation, the DRS equipment provides cooling for the reactor pressure vessel (RPV) control rod drive area, RPV skirt, RPV top head area and general drywell areas on Elevations 240 ft., 261 ft. and 278 ft. A review of the USAR confirmed that the DRS equipment is not required for, nor credited in, any post-accident mitigation scenario. The equipment is functionally non-safety related, but is qualified to NMP2 Seismic II/I requirements.

All of the drywell air unit coolers are supplied via the Reactor Building Closed Loop Cooling Water (CCP) System. A review of the qualification documentation for the CCP piping and primary containment penetrations confirmed that the lines are not analyzed for waterhammer events.

The potential for waterhammer events resulting from rapid increases in drywell temperature, was evaluated. The CCP supply for the drywell air unit coolers enters the primary containment through penetration 2CCP*Z46A and exits through penetration 2CCP*Z47. Containment isolation valves are provided on the inboard and outboard sides of both penetrations. A review of the associated controls determined that all four isolation valves (e.g., 2CCP*MOV122, *MOV124, *MOV265 and *MOV273) receive

automatic closure signals in the event of a LOCA. Initiation of containment isolation via a LOCA signal occurs under the following conditions:

- High drywell pressure, or
- Low reactor water level

Initiation of a LOCA signal occurs for a spectrum of break sizes and locations, including small and large Main Steam Line Breaks (MSLBs) and isolates the CCP piping to the drywell coolers.

The drywell unit cooler piping is equipped with thermal relief valves. NMPC calculations verified the capacity of the thermal relief valves and determined if the water in the drywell coolers would flash under LOCA or MSLB conditions. The analysis considers the entire constrained fluid piping loop between inlet penetration 2CCP*Z46A and return penetration 2CCP*Z47. The results of this analysis determined that the pressure in the piping and unit cooler coils will increase from normal operating (conservative minimum of 16 psig at the highest loop elevation under static head conditions) to the relief valve lift setting of 145 psig. Pressure will remain at the relief lift setting until the temperature in the piping is reduced. The 145 psig lift set pressure exceeds the saturation pressure for water at the peak drywell temperature of 340°F. Therefore, boiling would not occur with the isolation valves closed.

Engineering's review of the NMP2 EOPs determined that the isolation interlock to the CCP isolation valves can be defeated in response to high temperature conditions in the drywell. At the minimum static head pressure of 16 psig (static head differential between the bottom of the CCP expansion tank and highest CCP piping elevation in the containment), boiling would not occur until the drywell temperature exceeds 250°F.

The structural integrity of the piping is required only for Seismic II/I protection. Section DWT (drywell temperature) of the Primary Containment Control leg of the EOPs directs the initiation of all available drywell cooling when drywell temperature cannot be maintained below 150°F. This section allows the containment isolation interlocks to be defeated, if required. The available operating band provides for a temperature rise in excess of 100°F (150°F to 250°F) before boiling would occur. Once initiated, prior to drywell temperature reaching 250°F, the pressure in the CCP system increases and a continuous supply of cooling water is provided. This ensures that the liquid temperature is below 250°F and precludes boiling.

During small break scenarios, the rate of temperature rise is relatively slow, providing reasonable time for initiation of CCP prior to boiling. During large break scenarios, the temperature may quickly exceed the 250°F boiling point and voiding could occur if the system were restarted above this temperature. NMP2 EOPs have been revised in response to the GL 96-06 evaluation to prohibit operators from opening CCP isolation valves on the affected piping segments at drywell temperatures in excess of 250°F.

This administrative control will preclude the possibility of a damaging hydrodynamic loading of the associated piping.

B. Two-Phase Flow Conditions in Drywell Unit Cooler Piping

A review of the USAR confirmed that the DRS equipment is not required for, nor credited in, any post-accident mitigation scenario. As such, operation of the drywell coolers during post-accident conditions is not within the design basis of the plant. It was also noted that the cooling water supply to the affected equipment is isolated during MSLB and LOCA conditions. This precludes operation of the equipment.

Operation of the drywell coolers can be initiated manually. This action is taken in response to EOP direction and credits only the "available cooling" capacity. Though two-phase flow conditions would not compromise any safety limits, the EOPs direct that the CCP isolation valves not be opened with drywell temperature at 250°F or greater to preclude two-phase flow.

RESPONSE TO ISSUE 2:

OVERPRESSURIZATION OF PIPING DUE TO THERMAL EXPANSION

The evaluation of thermally-induced overpressurization was separated into two equipment types: A) the primary containment penetration and associated piping between the inboard and outboard isolation valves, and B) piping segments inside primary containment.

The results of the initial screening process identified 20 potentially fluid solid primary containment penetrations and associated piping segments requiring further evaluation. The population of 20 fluid solid penetrations includes 12 water-filled and 8 hydraulic fluid installations. Additional screening reduced the number of potentially impacted piping segments and penetrations from 20 to 17. The secondary screening process determined that 3 of the original 20 installations were not susceptible to thermal overpressurization because they are already equipped with thermal relief protection (2RHS*Z11, 2CCP*Z33B, and 2CCP*Z34B). For completeness, Engineering verified the adequacy of the existing thermal relief protection provided for penetrations 2RHS*Z11, 2CCP*Z33B, and 2CCP*Z34B. The remaining piping segments, penetrations, and unit space coolers comprised the population requiring additional evaluation for overpressurization. In addition, penetrations 2WCS*Z23 and 2RCS*Z41 were also evaluated for susceptibility to overpressurization when isolated for service during normal plant operation.

A. Primary Containment Penetrations

The evaluation of thermally-induced overpressurization included a review of every containment penetration. A screening process was utilized to determine if piping systems that penetrate the containment are susceptible to thermal expansion of fluid so that overpressurization of piping could occur. The following penetrations were screened from the population.

1. Penetrations that do not contain incompressible fluids (i.e., electrical, air, nitrogen, spare).

2. Penetrations that are open-ended to the free-air space of the containment.

3. Penetrations that are in communication with the Reactor Pressure Vessel (RPV) that may contain fluid but are open-ended and remain open-ended to the RPV.

Penetrations containing compressible fluids (i.e., air, nitrogen), electrical and spare penetrations, and penetrations open-ended to the free space of containment were also excluded from further evaluation as no fluid exists in these penetrations. Penetrations open-ended to the RPV were also excluded from further evaluation.

The remaining incompressible fluid-filled penetrations were screened using the following criteria to determine if the pipe system was susceptible to thermally-induced overpressurization.

1. If the fluid within the piping during normal operations was "hot" at t=0 for the LOOP/LOCA, it was considered not susceptible to overpressurization due to thermal expansion because the fluid was hotter than the drywell temperature under the LOCA condition. Off-normal system lineups (allowing fluid to cool) were also addressed for these applications.

2. If the fluid-filled piping system was designed with adequate relief capacity, it was considered not susceptible to overpressurization due to thermal expansion.

Based on the above criteria, the following fluid-filled penetrations or associated piping systems were determined to be potentially susceptible to overpressurization due to thermal expansion. NMP2 LER 96-16 was submitted to the NRC on January 20, 1997, to address this potential for thermal overpressurization for the penetrations that were considered to be outside the design basis.

PENETRATION	SYSTEM
2DER*Z40	Drywell Equipment and Floor Drains
2DFR*239	Drywell Equipment and Floor Drains
2SFC*Z80	Spent Fuel Pool Cooling
2CCP*Z33A	Reactor Building Closed Loop Cooling
2CCP*Z34A	Reactor Building Closed Loop Cooling
2CCP*Z46A	Reactor Building Closed Loop Cooling

PENETRATION	SYSTEM
2CCP*Z47	Reactor Building Closed Loop Cooling
2RCS*Z99A	Reactor Recirculation
2RCS*Z99B	Reactor Recirculation
2RCS*Z99C	Reactor Recirculation
2RCS*Z99D	Reactor Recirculation
2RCS*Z100A	Reactor Recirculation
2RCS*Z100B	Reactor Recirculation
2RCS*Z100C	Reactor Recirculation
2RCS*Z100D	Reactor Recirculation
2RCS*Z41	Reactor Recirculation
2WCS*Z23	Reactor Water Cleanup

BASIS FOR OPERABILITY

1. Penetrations 2DER*Z40 and 2DFR*Z39 (Drywell Equipment and Floor Drains)

   Design calculations were developed to address penetrations 2DER*Z40 and 2DFR*Z39. The subject penetrations serve the drywell equipment and floor drains, respectively. The objective of the calculations was to determine if the piping associated with the drain line penetrations would be water solid following a containment isolation signal.

   These lines are sloped for gravity drain. With both isolation valves open, the line will not become fluid-filled. If the isolation valves close at different times with the outboard isolation valve closing first, there is a potential for penetrations to become water solid. The results of the analysis determined that penetration 2DER*Z40 would not be fluid-filled at the current Technical Specification leakage limit, with an isolation valve stroke time differential (between inboard/outboard valves) of 13 seconds. The analysis was performed by reiterating various stroke time differentials until the maximum of 13 seconds was determined to be the most limiting to preclude a fluid-filled penetration. This exceeds the current surveillance test maximum allowable differential of 9.2 seconds. In addition, the maximum stroke time differential recorded during the previous 12 tests was 1.7 seconds, which provides further margin to preclude the penetration from becoming fluid-filled.

In the same way, the analysis determined that penetration 2DFR*Z39 would not be fluid-filled at the maximum Technical Specification leakage limit, assuming the worst case maximum isolation valve stroke time differential allowed by the NMP2 IST Program.

The results of the analysis indicate that the penetrations and associated piping segments are not susceptible to thermal overpressurization.

2. Penetration 2SFC*Z80 (Spent Fuel Pool Cooling)

A detailed review of the operation of this line determined that it would not be water solid during DBA events. The piping associated with this penetration provides a drain path from the inner refueling seal and is used only during refueling. NMP2 operating procedures provide specific directions to ensure the line is drained after use and that the manual isolation valves are locked shut. The procedure also contains a specific precautionary statement indicating that failure to drain the line may lead to overpressurization.

Based on the results of this review, it was determined that this line is not susceptible to thermal overpressurization. No further action is required.

3. Penetrations 2CCP*Z33A, *Z34A, *Z46A, and *Z47 (Reactor Building Closed Loop Cooling Water)

Primary Containment Penetrations 2CCP*Z33A, *Z34A, *Z46A, and *Z47 provide a supply and return path for the equipment being serviced by the CCP System. A review of the operating procedures and isolation valve interlocks determined these lines would be water solid and that no relief capability is provided. The following action was initiated to address the subject penetrations:

a. A thermal analysis was performed to determine the maximum expected pressure and temperature in the bottled segment, with a relief capacity equal to the expected valve leakage. Actual leak rate test results using air and water were used to correlate the water leakage based on air. The minimum available leakage was conservatively applied to all the penetration isolation valves.

   The results of the analysis determined that the maximum rate of thermal expansion occurs in penetration 2CCP*Z46A. The relief capacity required to offset the rate of thermal expansion of entrapped fluid for this penetration is 0.102 gpm. The minimum available leakage based on the air to water correlation is 0.132 gpm at 1,020 psid. Based on these parameters, the analysis determined that a peak pressure of approximately 690 psig will be reached before the rate of increase in volumetric expansion is offset by leakage. The analysis is conservative in that the boundary conditions and heat transfer coefficients were selected to maximize the heat input to the piping and credits no heat loss to the containment wall or outboard environment. The results of the analysis for this penetration bound the other three CCP installations.

b. Piping and penetration stress analyses were updated to determine the maximum pressure that could be accommodated without exceeding degraded condition allowables. The results of the analyses determined the piping and penetrations can accommodate a peak pressure of 1,150 psig, without exceeding the applicable degraded code allowables.

c. The associated isolation valves were also evaluated to determine the maximum pressure that could be accommodated within the applicable allowables. The results of the analysis determined the 8 in. nominal pipe size (NPS) valves to be limiting. These valves were determined to be capable of accommodating up to 950 psig without exceeding degraded condition allowables. The 4 in. NPS valves are qualified to 1,440 psig. Operation of the valve actuators at the elevated pressures associated with this scenario is not required since these valves perform no active post-accident function. However, if the valves are operated there will be no adverse consequence to the valves.

Since the maximum expected pressure in the penetrations is less than the capability of the weakest component, primary containment integrity is maintained.

An operability determination was developed in accordance with Generic Letter 91-18 and station procedures guidelines to address the affected piping and equipment. Based on the results of the supporting analysis, it was determined that the piping segments, penetrations, and associated isolation valves are operable.

4. <u>Penetrations 2RCS*Z99A, *Z99B, *Z99C, *Z99D, *Z100A, *Z100B, *Z100C, and *Z100D (Reactor Recirculation)</u>

This grouping of associated piping and equipment supply hydraulic fluid for positioning the Reactor Recirculation (RCS) flow control valves. The penetrations and isolation valves are required to maintain containment integrity. The inboard and outboard piping is non-safety related, Seismic II/I. Engineering's review of the fluid properties determined the thermal expansion characteristics of hydraulic oil to be slightly greater than that of water. Because of this, the RCS piping penetrations were evaluated for susceptibility to thermal overpressurization.

These penetrations do not have any thermal relief valves provided. However, spring loaded solenoid valves are provided on the inboard and outboard side of the penetrations. Engineering calculations determined that a pressure differential of about 15 psi would lift the solenoid valve disk and relieve the pressure from the penetrations towards the inboard piping. Therefore, the pressure in the penetrations could be no more than 15 psi higher than the pressure in the inboard piping. Since no thermal relief is provided, the pressure in the penetration and the inboard piping will increase until the "weakest link" in the inboard side of the system leaks/fails and relieves the overpressure condition.

An evaluation of the inboard segments determined the weak link to be the RCS flow control valve hydraulic actuator and associated drain piping. The results of this

evaluation determined that sufficient leakage would occur to relieve the overpressure condition either by: (a) leakage past the actuator seals or; (b) mechanical failure of the drain line, in case leakage past the actuator seals does not provide sufficient relief.

Engineering's review of the impact of the released hydraulic fluid determined no deleterious effects. Hydrogen gas generation in hydraulic fluids increases with exposure to radiation. Engineering's evaluation of this scenario determined that the maximum postulated hydrogen gas generation will be less than 0.5 percent of the total integrated post-DBA hydrogen generation in the containment, which is negligible. Radiation exposure also reduces the flash point of the oil. A review of the impact on the RCS fluid determined that although reduced, the flash point remains above the peak drywell temperature of 340°F.

Engineering calculations determined that the degraded allowable pressure limits for the containment penetration piping and isolation valves to be well above the mechanical failure points of the drain lines.

An operability determination was performed according to the guidance of Generic Letter 91-18 and station procedures, and the penetrations have been determined to be operable. A supplement to NMP2 LER 96-16 is being prepared to report the discrepancy to the NRC.

5. Penetration 2RCS*Z41 (RCS Conductivity Sample Line)

The associated piping provides for sampling of recirculating water conductivity. The penetration and isolation valves are required to maintain containment integrity. The inboard piping and isolation valves are safety related. The outboard piping is non-safety related and Seismic Category II/I. The conductivity sample piping inside primary containment is connected to the reactor recirculation line downstream of the recirculation pump. Engineering's review determined that this penetration normally contains hot fluid that would not be susceptible to thermal overpressurization. However, during extended isolation for maintenance, this penetration could cool down such that thermal overpressurization could be postulated to occur following accident conditions.

This penetration does not have any thermal relief valves provided. However, spring loaded solenoid valves are provided on the inboard and outboard side of the penetrations. An Engineering calculation determined that a pressure differential of about 7.5 psi would lift the solenoid valve disk and relieve the pressure from the penetrations towards the inboard piping. Therefore, the pressure in the penetrations could be no more than 7.5 psi higher than the pressure in the inboard piping. The pressure will relieve to recirculation piping inside primary containment at reactor vessel pressure.

An operability determination was performed according to the guidance of Generic Letter 91-18 and station procedures, and the penetration has been determined to be operable under all conditions.

6. Penetration 2WCS*Z23 (Reactor Water Cleanup)

Primary containment penetration 2WCS*Z23 provides a path from the reactor vessel to the Reactor Water Cleanup (WCS) system to maintain reactor water chemistry. A review of the operating procedures and isolation valve interlocks determined these lines would be water solid and that no relief capability is provided. If isolation occurs due to accident conditions during plant operation, there is no concern since the penetration would be operating at a temperature higher than that of the post-accident environment. However, if the penetration was isolated during normal plant operation for maintenance or other reasons, the temperature in the penetration could cool over a period of time to a temperature lower than that of the post-accident environment. Should the penetration be exposed to post-accident temperatures subsequent to cooling down, overpressurization due to thermal expansion could occur. The following action was initiated to address the subject penetrations:

a. A thermal analysis was performed to determine the maximum expected pressure and temperature in the bottled segment, with a relief capacity equal to the expected valve leakage. Actual leak rate test results using air and water were used to correlate the water leakage based on air. The minimum available leakage rate was conservatively applied to all of the penetration isolation valves and was determined to be greatly in excess of the leakage needed to preclude any penetration damage.

   The thermal transient analysis determined that a relief capacity of 6.0×10^{-4} gpm is required to offset the rate of thermal expansion. The minimum available leakage based on the air-to-water correlation is 0.0355 gpm at 1,020 psid. Based on these parameters, the analysis for the WCS penetration determined that a peak pressure of approximately 1872 psia will be reached before the rate of increase in volumetric expansion is offset by leakage. The analysis is conservative in that the boundary conditions and heat transfer coefficients were selected to maximize the heat input to the piping and credits no heat loss to the containment wall or outboard environment.

b. Piping and penetration stress analyses were updated to determine the maximum pressure that could be accommodated without exceeding degraded condition allowables. The results of the analyses determined the piping and penetrations can accommodate a peak pressure of 3,000 psig, without exceeding the applicable degraded code allowables.

c. The associated isolation valves were also evaluated to determine the maximum pressure that could be accommodated within the applicable allowables. The isolation valves were determined to be capable of accommodating pressure in excess of 2,500 psig without exceeding degraded condition allowables. Operation of the valve actuators at the elevated pressures associated with this scenario is not required since these valves perform no active post-accident function. However, if the valves are operated there will be no adverse consequence to the valves.

An operability determination was performed according to the guidance of Generic Letter 91-18 and station procedures, and the penetration has been determined to be operable under all conditions.

Since the maximum expected pressure in the penetration is less than the capability of the weakest component, primary containment integrity is maintained. The operability determination took credit for the leakage through either the inboard or outboard isolation valve. Since the outboard piping may be isolated for service during normal plant operation, administrative controls have been established to ensure that the inboard valve is not isolated from the reactor vessel in case the penetration is isolated from service.

B. Piping Segments Inside Containment

1. CCP Piping Segments Inboard of Penetrations 2CCP*Z33A, *Z33B, *Z34A, *Z34B, *Z46A, and *Z47

The screening process determined that the CCP piping segments on the inboard side of penetrations 2CCP*Z33A, *Z33B, *Z34A, *Z34B, *Z46A and *Z47 are potentially susceptible to thermal overpressurization. The piping segments include ten drywell unit coolers.

The affected piping segments are equipped with thermal relief valves located at the inlet to each of the supplied heat exchangers being serviced by the system. An analysis confirmed that the installed relief devices are adequate to maintain peak pressures at, or below the design pressure for the piping and associated heat exchangers. A review of the CCP operating procedure verified that, with the exception of the containment isolation valves, the flowpath to all of the affected segments will remain open during a LOCA or MSLB. Therefore, the relief paths credited in this analysis will remain open.

Based on the results of this review, it was determined that the CCP piping segments and equipment are not susceptible to thermal overpressurization. No further action is required.

2. Reactor Recirculation System (RCS) Piping Inboard of Penetrations 2RCS*Z99A-D and 2RCS*Z100A-D

An evaluation of the inboard segments associated with RCS hydraulic penetrations 2RCS*Z99A-D and 2RCS*Z100A-D was also performed. The results of this evaluation determined that sufficient leakage would occur to relieve the overpressure condition either by: (a) leakage past the actuator seals or; (b) mechanical failure of the drain line, in case leakage past the actuator seals does not provide sufficient relief. Therefore, the primary containment integrity will be maintained.

The operation of the inboard RCS hydraulic piping is not required for post-accident mitigation. Therefore, the potential breach in pressure integrity will have no adverse affects. Primary containment integrity is maintained by the penetrations.

However, Engineering will review the associated piping designs to determine if changes are required to preclude dependence on leakage to relieve overpressure conditions.

Engineering's review of remaining piping segments verified that the maximum pressure would not exceed piping design conditions.

CONCLUSIONS

The design reviews performed in response to Generic Letter 96-06, including the referenced operability determinations, verified that the containment systems at NMP2 are:

1. Not subject to the hydrodynamic effects of waterhammer in the piping and cooling coils associated with the drywell space coolers.

2. Not susceptible to two-phase flow conditions in the piping and cooling coils associated with the drywell space coolers during postulated LOCA and MSLB scenarios.

3. Not susceptible to thermally-induced overpressurization of water-filled piping sections inside containment that could jeopardize the ability of accident-mitigating systems to perform their safety functions or could lead to breach of containment integrity via bypass leakage.

4. Not susceptible to thermally-induced overpressurization of hydraulic fluid-filled piping sections inside containment that could jeopardize the ability of accident-mitigating systems to perform their safety functions or could lead to breach of containment integrity via bypass leakage.

However, containment penetrations 2CCP*Z33A, *Z34A, *Z46A, and *Z47 were determined to be outside their normal design basis. This condition was reported to the NRC in NMP2 LER 96-16 submitted on January 20, 1997.

In addition, as stated earlier in this report, RCS penetrations 2RCS*Z99A, *Z99B, *Z99C, *Z99D, *Z100A, *Z100B, *Z100C, and *Z100D, and WCS penetration 2WCS*Z23 were determined to be outside their normal design basis. This condition is being reported in a Supplement to LER 96-16. The operability of all of these penetrations was verified and documented in accordance the guidelines provided in Generic Letter 91-18 and station procedures.

CORRECTIVE ACTIONS:

1. Operability determinations for the affected penetrations have been completed in accordance with Generic Letter 91-18 and station procedures (complete).

2. Administrative and procedural controls have been implemented to assure that the operability of penetrations will be maintained (complete).

3. Submit Supplement to NMP2 LER 96-16 (February 24, 1997).

4. Prepare design changes and implement changes, if required, prior to restart from refueling outage RFO6.

ADDITIONAL INFORMATION

LER 96-16:

In NMP2 LER 96-16, NMPC committed to providing the NRC with information, within this response to Generic Letter 96-06, pertaining to additional future corrective actions associated with containment penetrations 2CCP*Z33A, *Z34A, *Z46A, and *Z47. The information is provided below.

Design changes for the affected penetrations or other actions as appropriate will be prepared, and modifications, if required, will be completed prior to restart from refueling outage RFO6.