# CATEGORY 1

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ACCESSION NBR:9906140123 DOC.DATE: 99/06/04 NOTARIZED: NO DOCKET #
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Revised Ltr 6/26/99 Ltr

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To:

NRC DOCUMENT CONTROL DESK
ATTN: JIM McKNIGHT. ←

FROM

ALI ABBASI
NIAGARA MOHAWK POWER CORPORATION
TEL: (315) 349- 4528

PLEASE REFER TO OUR EARLIER LETTER DATED APRIL 21, 1999 (LETTER NO. NMP2L 1862) FOR NINE MILE POINT UNIT 2.

THE ENTIRE ATTACHMENT TO THAT ONE PAGE LETTER SHOULD BE REPLACED WITH THE ENTIRE ATTACHMENT BEING SENT WITH THIS NOTE. THE LETTER ITSELF DOES NOT NEED TO BE REPLACED. IF THERE ARE ANY QUESTIONS, PLEASE CALL ME. THANKS.

1/

A. Abbasi

A001

# ATTACHMENT

ATTACHMENT

SUPPLEMENTAL REQUEST FOR ADDITIONAL INFORMATION
REGARDING RESPONSE TO GENERIC LETTER 95-07
NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT NUCLEAR STATION, UNIT NO. 2
DOCKET NO. 50-410

*Request for Information No. 1:*

*Your November 21, 1996, submittal states that the RCIC-steam-exhaust-to-suppression-pool valve, 2ICS*MOV122, is susceptible to thermal binding. It also states that no corrective action is required because the valve would be declared inoperable and a Technical Specification (TS) action statement would be entered. Please clarify when the valve would be declared inoperable (i.e., the instant the valve closed or when the valve failed to open?).*

Response:

The relationship of this valve to Reactor Core Isolation Cooling (RCIC) System operability and Technical Specification actions needs to be clarified. During surveillance testing, or any other situation that would require this valve to be closed, prior to closing the valve the RCIC system is declared inoperable due to the function of this valve as a turbine exhaust pathway. Once the RCIC System is declared inoperable, the plant is in a 14 day action statement. At the end of this action statement, if the valve is not reopened, a plant shutdown is required. Therefore, the situation under which the valve is subject to thermal binding (i.e., closed) is the same situation which requires entry into the shutdown action statement due to RCIC System Technical Specification requirements.

*Request for Information No. 2:*

*You performed calculations for numerous valves to demonstrate that they could operate without pressure locking. If additional calculations have been performed that change the November 21, 1996 results regarding the valves listed below, then provide those calculations. You evaluated the following valves as having adequate actuator capacity to overcome pressure locking scenarios at the specific point of operation during an accident; therefore, you plan no modification for pressure locking mitigation:*

| | |
|---|---|
| *2CSH*MOV101* | *High Pressure Core Spray (HPCS) Pump Suction Isolation* |
| *2CSL*MOV107* | *Low Pressure Core Spray (LPCS) Pump Minimum Flow Bypass Isolation* |
| *2ICS*MOV121* | *Reactor Core Isolation Cooling (RCIC) Steam Supply Outboard Isolation* |
| *2ICS*MOV122* | *RCIC Steam Exhaust to Suppression Pool* |
| *2ICS*MOV129* | *RCIC Pump Suction Isolation* |
| *2ICS*MOV128* | *RCIC Steam Supply Inboard Isolation* |

| | |
|---|---|
| *2RHS*MOV4A/B/C* | *Residual Heat Removal (RHR) Loop Pump Minimum Flow Isolation* |
| *2RHS*MOV115* | *Service Water (SW)/RHR Containment Flooding Cross Tie* |
| *2RHS*MOV116* | *SW/RHR Containment Flooding Cross Tie Isolation* |
| *2SWP*MOV17A/B* | *SW to Spent Fuel Cooling (SFC) Heat Exchanger Isolation* |
| *2SWP*MOV18A/B* | *SW from SFC Heat Exchanger Isolation* |
| *2SWP*MOV21A/B* | *SW Spent Fuel Pool Makeup Isolation* |
| *2SWP*MOV66A/B* | *SW Return Isolation From Diesel Generator (DG) Cooler* |
| *2SWP*MOV67A/B* | *SW to Control Room Chiller Isolation* |
| *2SWP*MOV94A/B* | *SW Return From HPCS DG Cooler Isolation* |

*Regarding the methodology used for these calculations, discuss:*

*2.1 Minimum margins that should be applied between calculated pressure-locking thrust and actuator capability,*

*2.2 Any diagnostic equipment accuracy requirements, and*

*2.3 Methodology limitations.*

*2.4 Is this methodology used for flexible and/or double disk gate valves?*

*2.5 How did you validate this methodology?*

***Response 2.1:***

In November 21, 1996, Niagara Mohawk Power Corporation (NMPC) indicated that twenty three (23) valves have adequate actuator capacity to overcome the applicable pressure locking scenarios. This was based on the methodology used by NMPC at that time. NMPC has re-evaluated (see Enclosure 1 for a revised calculation and Enclosure 2 for the calculation disposition) these 23 valves as described below:

(1) Eight (8) valves meet the Commonwealth Edison methodology plus an additional 20% margin.

(2) One (1) valve has already been modified to meet the Commonwealth Edison methodology plus an additional 20% margin.

(3) Three (3) valves meet the Commonwealth Edison methodology, but not the additional 20% margin and will be modified. However, the methodology used to determine the pressure increase in the bonnet is very conservative. If further evaluation of the valve(s) confirm(s) that modification(s) is (are) not required, NMPC will notify the Staff.

(4) Six (6) valves do not meet the Commonwealth Edison methodology and will be modified. However, the methodology used to determine the pressure increase in the bonnet is very conservative. If further evaluation of the valve(s) confirm(s) that modification(s) is (are) not required, NMPC will notify the

Staff.

(5) Five (5) valves have been further evaluated and have been determined not to be subjected to pressure locking or thermal binding at the time when they are required to operate to fulfill their safety function. Therefore, no modification is required.

These five categories of the 23 flexible wedge gate valves are discussed in greater detail below.

FIRST CATEGORY

**2ICS*MOV122, 2ICS*MOV128, 2SWP*MOV17A/B, 2SWP*MOV18A/B, 2SWP*MOV94A and 2SWP*MOV67A** These valves have a positive open thrust margin using the Commonwealth Edison methodology plus an additional 20% margin.

SECOND CATEGORY

**2SWP*MOV67B** This valve's normal position is either open or closed and was modified during RFO6 providing sufficient opening thrust margin to satisfy the Commonwealth Edison methodology plus an additional 20% margin.

THIRD CATEGORY

**2SWP*MOV66A/B** These are normally closed valves with an active safety related function to open and permit service water return flow from the respective Emergency Diesel Generator. These valves are capable of opening against the temperature induced pressure locking force using the Commonwealth Edison methodology, but not sufficient to account for the additional 20% margin. These valves will be modified prior to the end of Refueling Outage 7 (RFO7) to provide additional margin. However, if further evaluation of the valve(s) confirm(s) that a modification(s) is (are) not required, NMPC will notify the Staff.

**2SWP*MOV94B** This is a normally closed valve with an active safety related function to open, allowing service water return flow from the respective Emergency Diesel Generator. This valve is capable of opening against the temperature induced pressure locking force using the Commonwealth Edison methodology, but not sufficient to account for the additional 20% margin. This valve will be modified prior to the end of RFO7 to provide additional margin. However, if further evaluation of the valve confirms that a modification is not required, NMPC will notify the Staff.

FOURTH CATEGORY

**2CSL*MOV107** This is the Low Pressure Core Spray (LPCS) pump minimum flow valve. It is a normally open valve which is required to close for maximizing injection flow after pump flow is established greater than the required minimum flow. The valve will be modified prior to the end of RFO7 to meet the Commonwealth Edison methodology plus an additional 20% margin. However, if further evaluation of the valve confirms that a modification is not required, NMPC will notify the Staff.

**2RHS*MOV4A/B/C** These are the minimum flow valves for the three Residual Heat Removal (RHR) pumps. They are normally open valves which remain open during pump start and must close to maximize injection flow into the reactor. After closure, these valves may have to reopen for other system functions. These valves will be modified prior to the end of RFO7 to meet the Commonwealth Edison methodology plus an additional 20% margin. However, if further evaluation of the valve(s) confirm(s) that a modification(s) is (are) not required, NMPC will notify the Staff.

**2RHS*MOV115 and 2RHS*MOV116** These valves are positioned in series and are normally closed. They open to provide an RHR intertie with Service Water in case containment flooding is required. These valves will be modified prior to the end of RFO7 to meet the Commonwealth Edison methodology plus an additional 20% margin. However, if further evaluation of the valve(s) confirm(s) that modification(s) is (are) not required, NMPC will notify the Staff.

FIFTH CATEGORY

**2ICS*MOV121** This is the RCIC outboard containment isolation valve. This is a normally open valve with an active safety related function to close upon an isolation signal (RCIC line break). Once closed, there is no design basis requirement that the valve be re-opened. No valve modification is required.

**2ICS*MOV129** This is the RCIC suction valve from the Condensate Storage Tank (CST). It is a normally open valve with an active safety related function to close for transferring suction from the CST to the suppression pool. Once the valve is closed and the suction transfer is accomplished, there is no design basis requirement that the valve be re-opened. No valve modification is required.

**2SWP*MOV21A/B** These are normally closed valves with an active safety related function to open and provide Service Water makeup to the spent fuel pool. The ambient temperature at the location of these valves will be sufficiently reduced such that the pressure locking conditions no longer exist when the valves are required to function. No valve modification is required.

**2CSH*MOV101** This is the High Pressure Core Spray (HPCS) suction valve from the CST Tank. It is a valve which is normally open with an active safety related function to close for transferring HPCS pump suction from the CST to the suppression pool. Once the valve is closed and the suction transfer is accomplished, there is no design basis requirement that the valve be re-opened. No valve modification is required.

*Response 2.2: Any diagnostic equipment accuracy requirements*

The random measurement uncertainty for the static unseating thrust is assumed to be no more than +/-15%.

*Response 2.3: Methodology limitations.*

The Commonwealth Edison pressure locking methodology is valid for all flexible wedge gate

valves.

*Response 2.4: Is this methodology used for flexible and/or double disk gate valves?*

The methodology was used on flexible gate valves. There are no double disk gates subject to pressure locking conditions.

*Response 2.5: How did you validate this methodology?*

NMPC used the NRC endorsed Commonwealth Edison methodology including a 20% margin.