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 AUTH.NAME AUTHOR AFFILIATION
 CONWAY, J.T. Niagara Mohawk Power Corp.
 RECIPIENT NAME RECIPIENT AFFILIATION
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SUBJECT: Provides results of action taken w/regard to commitments made re GL 89-10, "Safety-Related Motor-Operated Valve Testing & Surveillance."

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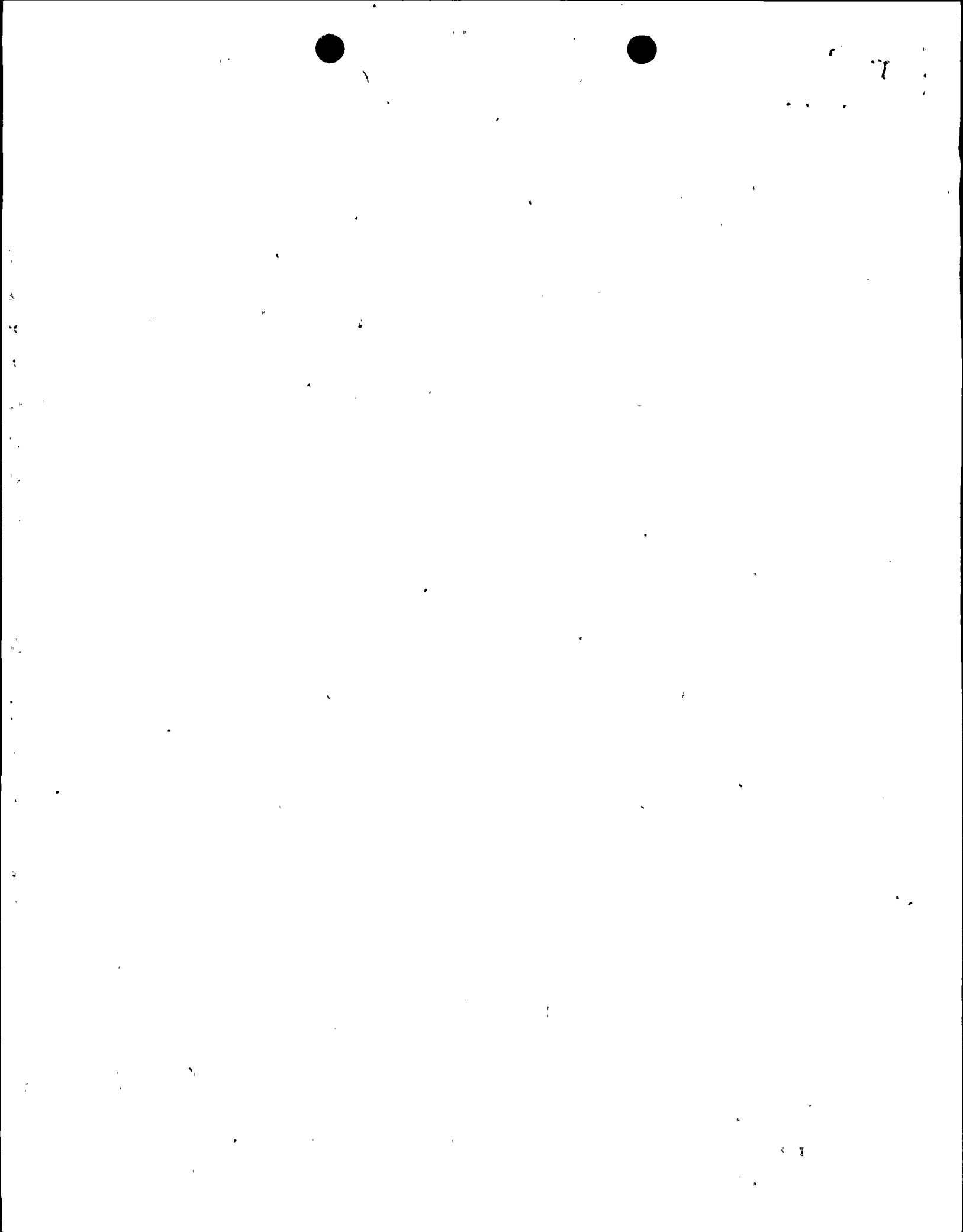
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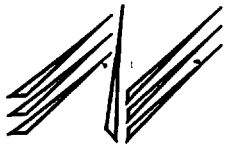
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NIAGARA MOHAWK

GENERATION
BUSINESS GROUP

NINE MILE POINT NUCLEAR STATION/LAKE ROAD, P.O. BOX 63, LYCOMING, NEW YORK 13093/TELEPHONE (315) 349-4213
FAX (315) 349-2605

JOHN T. CONWAY
Vice President
Nuclear Engineering

February 27, 1998
NMP1L 1294

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

RE: Nine Mile Point Unit 1
 Docket No. 50-220
 DPR-63

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

Subject: *Generic Letter (GL) 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance"*

Gentlemen:

On September 30, 1997, Niagara Mohawk Power Corporation (NMPC) committed to obtain industry data or perform analysis to support calculations for specified valve groups, and develop a plan to verify torque predictions for "butterfly" valves for both Nine Mile Point Unit 1 (NMP1) and Nine Mile Point Unit 2 (NMP2). In addition, an evaluation was to be performed on the practicality of increasing the margin on NMP1 Reactor Water Cleanup Valve 33-01. This letter is to provide the results of the actions taken with regard to these commitments. The attached summarizes the specific actions and results.

Very truly yours,

John T. Conway
Vice President - Nuclear Engineering

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JTC/GJG/cmK
Attachment

AD 64/1

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





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ATTACHMENT
RESULTS OF GL 89-10 CLOSURE COMMITMENTS

I. Obtain Industry Data or Perform Analysis to Support Calculations Used for NMP1 Valve Groups "G" and "K" and NMP2 Valve Groups V03, V06, and GL03a

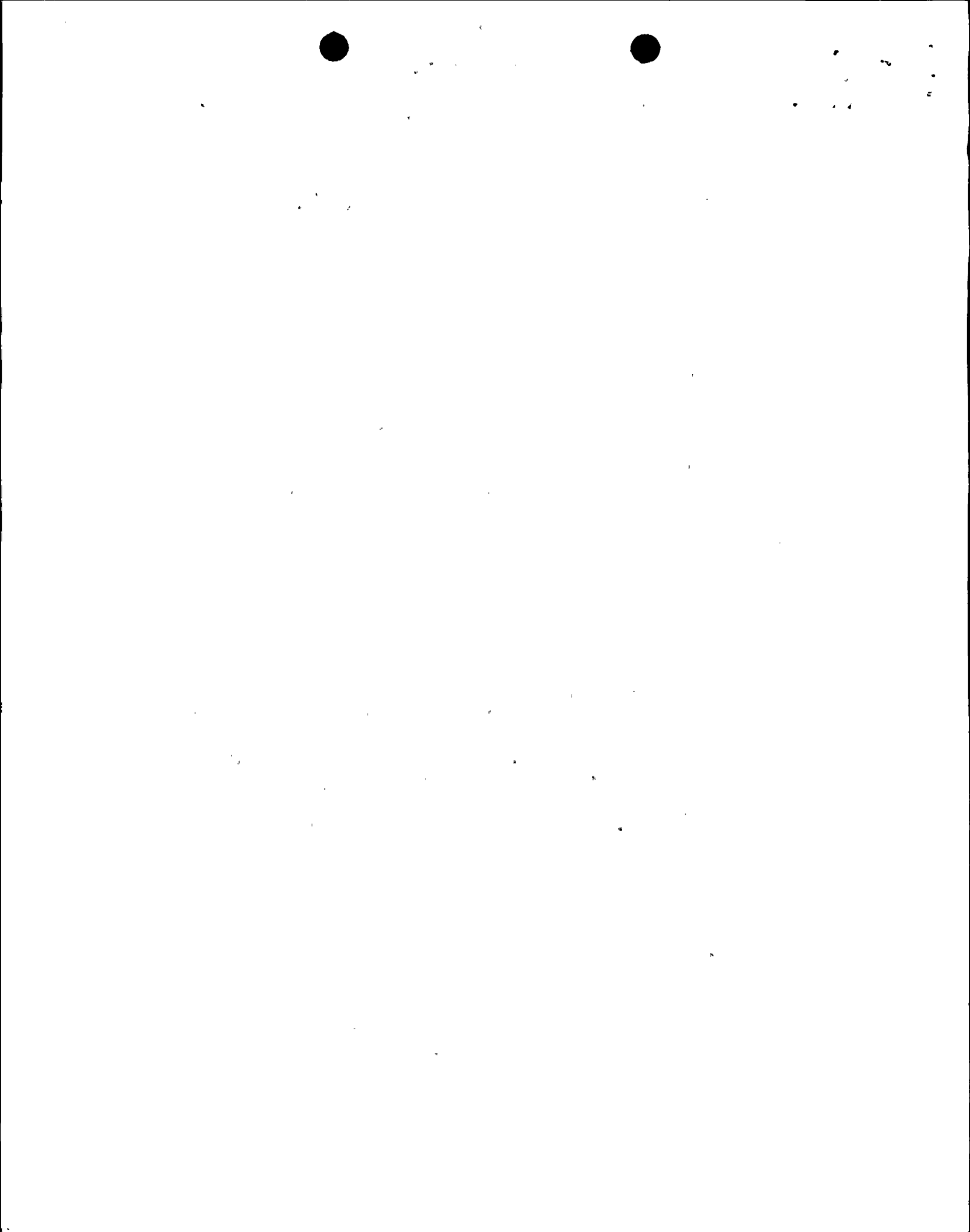
A. NMP1 Valve Groups "G" and "K"

Valve Group "G"

This valve group contains Edwards Herma valves in the Post Accident Sampling System. The valves are globe valves with a diaphragm between the pressure boundary and non-pressure boundary portions of the stem. The Electric Power and Research Institute (EPRI) Performance Prediction Methodology (PPM) cannot be used on this type of valve. However, additional test data was obtained from the Perry nuclear power plant. Perry dynamically tested two valves of similar design and under similar conditions. The test data was reviewed in detail and their results were consistent with NMP1 dynamic testing. These valves are set at NMP1 with a margin of greater than 25 percent. Additionally, these valves have a low ranking in the NMP1 probabilistic safety analysis. The additional industry data obtained supports the validity of the Niagara Mohawk sizing calculations and operating margin for these valves.

Valve Group "K"

This valve group contains Yarway globe valves in the Emergency Cooling Vent System. The EPRI PPM cannot be used on this type of valve. However, additional test information from Duke Power was obtained. Duke performed a number of prototype tests on this style valve and the results are consistent with the valve factor currently used at NMP1. One of the valves in this group has greater than 25 percent closing margin and the other less than 5 percent. The safety-related function of these valves is to open to allow the Emergency Cooling System to vent to the torus and to close for containment isolation. The valves are flow assisted in the open direction. There is little consequence if the valves do not close since they are in effect sealed by the water level in the torus. During normal plant operation, the valves are closed. These two valves have a low ranking in the NMP1 probabilistic safety analysis. The additional industry data obtained supports the validity of the Niagara Mohawk sizing calculations and operating margin for these valves.



B. NMP2 Valve Groups V03, V06 and GL03a

Valve Group V03

NMPC has completed an analysis of the thrust requirements for valves in this group using the EPRI PPM. The results of the PPM have been used to determine equivalent valve factors for MOV sizing calculations and the results of the evaluation are being incorporated into the documentation of the MOV program. Although currently operable, the two valves in this group (2ICS*MOV124 and 2ICS*MOV126) will be modified to accommodate the increased valve factors resulting from the PPM evaluation. These modifications will be completed by the end of refueling outage 7.

Valve Group V06

The two valves in group V06 (2ICS*MOV121 and 2ICS*MOV128) perform a high energy line break isolation function. Due to damage experienced during the EPRI testing of the test valve, the EPRI PPM methodology gives an "unpredictable" error unless edge treatments are performed on the valve discs. Unlike the EPRI test valve, the valves in this group were manufactured with a hardened guide channel which would reduce the potential for damage of the type experienced by the EPRI test valve. NMPC is planning to disassemble these valves during refueling outage 7 and perform the recommended edge treatments necessary to remove the "unpredictable" error. Additionally, during refueling outage 6, a gear set change will be installed on 2ICS*MOV128 to increase the available valve factor margin prior to implementation of the edge treatments.

Valve Group GL03A

These globe valves were evaluated using the EPRI PPM. The as-left capability of the valves was determined to exceed that required by the EPRI PPM model.

II. Develop a Plan to Verify Vendor Torque Prediction for "Butterfly" Valves for Both NMP1 and NMP2

NMP1

The Allis-Chalmers butterfly valves in the Containment Vent and Purge System are the only butterfly valves in the NMP1 GL 89-10 program. The plan to verify vendor torque predictions is as follows:

- a. Static testing will be performed to accurately determine the required seating, packing and bearing loads.



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- b. Required torque will be determined using the revised EPRI PPM or the revised EPRI butterfly valve application guide when this becomes available. The loads determined from static testing will be used as input to the evaluation.
- c. Required torque will be compared to the torque capability of the valve actuator and changes to the valves will be made if necessary.

These actions will be completed by the end of the next refueling outage (spring 1999).

NMP2

A reevaluation of completed differential testing of the Clow Tricentric butterfly valves has been completed and resulted in updated independent validation of minimum torque requirements. As additional confirmation, three additional differential pressure tests are scheduled with improved diagnostic instrumentation. In addition, NMPC will be performing one of these differential pressure tests as part of our commitment to the Joint Owner's Group (JOG) response to GL 96-05. The results of our reevaluation of torque requirements are being incorporated into the applicable design documentation for the tricentric valves. No additional hardware changes are expected to be necessary as a result of completing this activity and no significant change in the setup of the NMP2 butterfly valves is anticipated from that presented during the NRC closure inspection of the GL 89-10 program.

III. Evaluate the Practicality of Increasing the Margin on NMP1 Reactor Water Cleanup Valve 33-01

NMPC has evaluated the practicality of increasing the margin on the Reactor Water Cleanup Valve 33-01. In order to physically add margin to the valve, a larger actuator capable of withstanding more thrust would be required. Since the radiation exposure associated with this potential modification is significant, NMPC has opted to reevaluate the existing margin of this valve, rather than perform the modification.

The results of this evaluation are that margins at flow cutoff are actually in excess of 10 percent rather than one percent, which is predicted by the PPM analysis. This conclusion is based upon the following:

- a. A default packing load of 1500 pounds was assumed in the original PPM analysis rather than the measured 1200 pounds.
- b. The disc coefficient used in the PPM analysis was .46 for flow cutoff. Based upon the specific valve design, EPRI separate effects test data, and EPRI testing for temperatures similar to the service condition of this valve, the disc coefficient is estimated to be .35 at flow cutoff.



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- c. The closed torque switch is bypassed until the downstream disk covers the port area of the valve. This arrangement results in the application of the full capability of the motor to achieve flow cutoff. As a result, the available valve factor is 1.3 to that point.

Based upon the preceding, NMPC estimates that there is in excess of 10 percent margin in available valve factor. NMPC believes that the existing margin is adequate, considering the design function of this valve. NMPC will statically test this valve during refueling outages to provide additional assurance that adequate closing thrust is maintained.

