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 SCHROCK, C.A.      Wisconsin Public Service Corp.  
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SUBJECT: Responds to NRC 931207 ltr re violations noted in insp rept  
 50-305/93-17 on 931101-05 & 15-18. Corrective actions:  
 scheduled untested MOVs to be tested during 1994 refueling  
 outage.

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February 7, 1994

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
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Ladies/Gentlemen:

Docket 50-305  
Operating License DPR-43  
Kewaunee Nuclear Power Plant  
Reply to Inspection Report 93-017

Reference: Letter from G. C. Wright (NRC) to C. A. Schrock (WPSC) dated December 7, 1993 (Inspection Report 93-017)

In the reference, the Nuclear Regulator Commission (NRC) provided Wisconsin Public Service Corporation (WPSC) with the results of a routine safety inspection conducted November 1-5 and 15-18, 1993. This inspection consisted primarily of a review of the implementation of the Kewaunee motor operated valve program established in response to Generic Letter 89-10.

As noted in the inspection report, due to the lack of formal documentation, the NRC staff could not evaluate the licensee process for feedback of test data as it applied to parallel train valves. Furthermore, generic assumptions used in calculating torque switch settings did not appear to be supported by test data.

As requested in the inspection report, the attachment to this letter provides our written summary of the actions taken with regard to the feedback of test information to parallel train valves along with justification for use of generic assumptions.

Sincerely,

*Charles A. Schrock*  
Charles A. Schrock  
Manager - Nuclear Engineering

DLR

Attach. 9402220174 940207  
PDR ADDCK 05000305  
PDR

cc - US NRC Region III  
US NRC Senior Resident Inspector

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**ATTACHMENT 1**

**to**

**Letter From C.A. Schrock (WPSC)**

**to**

**Document Control Desk (NRC)**

**Dated: February 7, 1994**

**Re: Inspection Report 93-017  
(MOV Followup Inspection)**

NRC Concern - MOV Switch Settings

In light of actual test results, some assumptions used to calculate torque switch settings did not appear conservative. For example, the program assumed valve factors to be 0.3 for untested gate valves, although approximately 85% of the gate valves tested had valve factors greater than 0.3, and 65% of the valve factors were greater than 0.5. Furthermore, the programmatic assumptions did not account for load sensitive behavior, although many of the tested MOVs exhibited some load sensitive behavior.

The generic programmatic assumptions were as follows:

Gate Valve Factor - 0.3  
Globe Valve Factor - 1.1  
Stem Friction Coefficient - 0.2  
Load Sensitive Behavior - 0%

The use of unrealistic design assumptions may result in under predicting the required thrust needed to operate the valves. As such, operability may be questionable. The inspectors requested the licensee to respond to this issue and to justify the design basis capabilities of the untested MOVs based on more realistic design assumptions.

WPSC Response

Prior to the NRC inspection, Kewaunee Nuclear Power Plant (KNPP) had been using a generic valve factor assumption of 0.3 for gate valves in the initial target thrust calculations. This was based upon manufacturer's recommendations. KNPP agrees with the inspector's concern that this is not a conservative value. KNPP also believes that a generic valve factor cannot be accurately determined for use with all valve designs. Valve manufacturer, type/size, differential pressure, and flow conditions significantly affect the valve factor; therefore, a statistically determined valve factor from all dynamically tested valves may not be a true representation of the valve factor for non-dynamically tested valves.

Document Control Desk  
February 7, 1994  
Attachment 1, Page 2

All untested MOVs at KNPP (with a few exceptions) are scheduled to be tested during the 1994 refueling outage which should end mid-May. For the short time period remaining until all valves are tested, a valve factor of 0.5 will be used in target thrust calculations for all gate valves unless actual test data from like valves dictates otherwise. As dynamic testing is completed, the generic valve factor assumption will be re-evaluated for specific valve groups based upon test results. KNPP believes using a 0.5 valve factor is reasonable for valves that cannot be dynamically tested. This value is based on our interpretation of industry data, plant specific test data (with consideration of valve type, manufacturer, etc.) and engineering judgement. Valves that were setup statically with a 0.3 valve factor assumption will have the calculations formally redone with a 0.5 valve factor. Preliminary review of the valves already tested statically indicates enough margin for proper operation with a 0.5 valve factor. Any necessary adjustments to the settings for valves already tested will be made prior to the GL 89-10 deadline of June 1994.

Globe valve testing at KNPP has indicated that a 1.1 valve factor is an appropriate assumption. MOV diagnostic testing also indicates that KNPP's stem friction coefficient assumption of 0.2 is generally conservative and will not be changed. As more testing is completed, these generic assumptions may be changed based upon test results.

The NRC inspection report identified KNPP's load sensitive behavior assumption as 0%. KNPP has been using, and will continue to use, the following percentages in thrust margin calculations:

SMB-000	13 %
SMB-00	14 %
SMB-0	26 %
SMB-1	18 %
SMB-2	30 %
SMB-3	30 %

This information was obtained from ITI-MOVATS Engineering Report 5.0, Revision 6. These values are generally conservative. Actual load sensitive behavior percentages are used to evaluate dynamic test results and determine valve operability.

Any changes to the generic programmatic assumptions have been fed back into the untested valve calculations and at this time all untested valves have been determined to be operable.

#### NRC Concern - Differential Pressure Testing

Test data was fed back into the calculations for parallel train valves but the licensee did not document the evaluations. As such, the inspectors could not fully evaluate the work and could not determine that all the regulatory requirements, pertaining to such work, were met. Additionally, discussions with the licensee's staff indicated that test data may not have been consistently applied to the parallel train valves. The NRC inspectors requested the licensee to formally respond to this issue and to identify the steps taken to evaluate these valves.

#### WPSC Response

Parallel train valves that are not dynamically tested are evaluated using test results of the dynamically tested sister valves. In most cases to date, parallel train valves are tested within a week of each other due to plant conditions and system availability; therefore, formal

Document Control Desk  
February 7, 1994  
Attachment 1, Page 4

documentation of the evaluations are not necessary. However, in the event that the parallel train valve is not expected to be tested in the near term, KNPP will document the evaluations of the untested parallel train valve based on the sister valve dynamic test results and the existing torque switch settings. Only five untested parallel train valves fall into this category at this time. The evaluation of these valves with the parallel train valve test results has been completed and documented and are acceptable.